



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

November 26, 2003

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

TO: Interested Parties / Applicant

RE: ISPAT Inland, Inc. / 089-16966-00316

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER.dot 9/16/03



Joseph E. Kernan
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PART 70 SIGNIFICANT SOURCE MODIFICATION AND MAJOR MODIFICATION UNDER PREVENTION OF SIGNIFICANT DETERIORATION

OFFICE OF AIR QUALITY

**ISPAT INLAND, INC.
3210 Watling Street
East Chicago, Indiana 46312**

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is also issued in accordance with 40 CFR Part 70, Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et.seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR §70.6, IC 13-15 and IC 13-17.

This permit is issued under the provisions of 326 IAC 2 and 326 IAC 2-2 (Prevention of Significant Deterioration), 326 IAC 2-1.1-6 (Public Notice), IC 4-21.5-3-7 (Review; Petition; Denial of Petition; Preliminary Hearing) and IC 13-15-6 (Appeal of Agency Determination to Issue or Deny Permit) with conditions listed on the attached pages.

Significant Source Modification No.: 089-16966-00316

Issuance Date: November 26, 2003

Issued by: Original Signed by Paul Dubenetzky
Paul Dubenetzky, Branch Chief



Office of Air Quality	
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EMERGENCY OCCURRENCE REPORT

PART 70 SIGNIFICANT SOURCE MODIFICATION CERTIFICATION

QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

PART 70 QUARTERLY REPORT

APPENDIX A – EMISSION FACTORS

SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary Integrated Iron and Steel Mill.

Responsible Official:	John D. Fekete
Source Address:	3210 Watling Street, East Chicago, Indiana 46312
Mailing Address:	3210 Watling Street MC 8-130, East Chicago, Indiana 46312
General Source Phone Number:	(219) 399-4516 (Jim Carson)
SIC Code:	3312
County Location:	Lake County
Source Location Status:	Non-attainment for PM ₁₀ , SO ₂ , and ozone Attainment for all other criteria pollutants
Source Status:	Part 70 Permit Program Major Source, under PSD and Emission Offset Rules; Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories under PSD and Emission Offset Rules

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This modification to a stationary source is approved to construct and operate the following emission units and pollution control devices:

Changes as part of this project to increase production at No.7 Blast Furnace

- (a) Modifications to existing Blast Furnace identified as No.7, by a detailed reline and the addition of a fourth blast air heating stove to provide additional blast capacity, exhausting to stack 170. This modification is intended to increase production of hot metal from this furnace by 772,620 tons per year.
- (b) Additional 274,178 tons per year of pulverized coal for injection into the No.7 Blast Furnace will be supplied by the existing pulverized coal injection system without any changes to the existing equipment.
- (c) The usage of iron bearing self-fluxing pellets as raw material for molten metal production at No.7 Blast Furnace will increase by 1,295,275 tons per year.
- (d) Increased consumption of coke at No.7 Blast Furnace by 112,132 tons per year, either from the on-site coke plant operated by Indiana Harbor Coke Company or purchased from an offsite producer.
- (e) Utilization of an additional 28,082 MMSCF per year of blast furnace gas at the No.5 Boiler House to generate steam. This usage of additional blast furnace gas will likely reduce the use of natural gas at the No.5 Boiler House

- (f) Any additional blast furnace gas, which cannot be utilized, will be consumed in the three velocity nozzle flare identified as stack 195 at No.7 Blast Furnace.
- (g) To shutdown the 2A Blooming Mill and 21 inch Bar Mill.
- (h) Increased lime production at No.1 lime plant and consumption at No.2 and/or No.4 BOF shop by 29,785 tons per year. This will result in an increase of natural gas usage by 146 MMSCF per year.
- (i) The increased hot metal production at No.7 Blast Furnace will be processed at the existing No.2 and/or No.4 Basic Oxygen Furnaces (BOF) shops to produce additional steel. The steel production will increase by approximately 772,620 tons per year.

Modifications in contemporaneous period for this modification from 1998 to 2003

- (j) No. 4 AC Station – The emissions unit consisting of five boilers identified as 401 through 405 that were shutdown in April 1999.
- (k) 80-Inch No. 4 WBF Project - Shutdown of two pusher furnaces and installation of No. 4 Walking Beam Furnace in 2001.
- (l) EAF Vacuum Degasser – Permitted in March 1999.
- (m) No. 6 Continuous Coating Line – Permitted in May 1999.
- (n) Slag Granulation/Pelletization - Installation reduced emissions by cooling and processing slag currently handled in the slag pits. The curtailment of slag pits occurred in 2002.
- (o) EAF Direct Reduced Iron System - Installation of system to handle Direct Reduced Iron at No. 1 EAF, started up in 2002.

The following emissions units and control devices are affected due to this modification at No.7 Blast Furnace:

1. No.7 Blast Furnace:
 - (a) Casthouse No.7 Blast Furnace controlled by:
 - (A) east baghouse exhausting to stack 167
 - (B) west baghouse exhausting to stack 166
 - (b) Coke screening station controlled by baghouse exhausting to stack 169
 - (c) Stockhouse coke handling controlled by baghouse exhausting to stack 172
 - (d) Stockhouse pellet handling controlled by baghouse exhausting to stack 168
 - (e) No.7 Blast Furnace stoves exhausting to stack 170
 - (f) Slag pit operation
 - (g) Slag granulator and pelletizer operation
 - (h) Gas Cleaning System
 - (i) Flare stack 195
 - (j) Roof Monitor 171
2. No.5 Boiler House:

No.5 Boiler House exhausting to stack 134, to the extent increases in the usage of blast furnace gas from No.7 Blast Furnace at this unit.
3. Pulverized Coal Injection plant:
 - (a) Coal transfer A controlled by baghouse exhausting to stack 185

- (b) Coal storage C controlled by baghouse exhausting to stack 186
 - (c) Coal pulverizer D controlled by baghouse exhausting to stack 187
 - (d) Coal pulverizer E controlled by baghouse exhausting to stack 188
 - (e) Coal storage F controlled by baghouse exhausting to stack 189
 - (f) Coal storage G controlled by baghouse exhausting to stack 190
 - (g) Coal unloading system exhausting to stack 192
4. No.1 Lime Plant:
- (a) Lime plant storage silo controlled by baghouse exhausting to stack 47
 - (b) No.1 and No.2 Lime Kiln controlled by two (2) baghouses exhausting to stack 45 and 49
 - (c) Lime plant fugitive control micro-pulse controlled by baghouse exhausting to stack 46
 - (d) Lime plant truck loadout controlled by baghouse exhausting to stack 48
5. No.2 BOF shop:
- (a) No.10 Basic Oxygen Furnace controlled by scrubber exhausting to stack 147
 - (b) No.20 Basic Oxygen Furnace controlled by scrubber exhausting to stack 148
 - (c) Ladle metallurgy facility station controlled by baghouse exhausting to stack 154
 - (d) Secondary ventilation system for No.2 BOF shop controlled by scrubber exhausting to stack 149
 - (e) Charge Aisle and Hot Metal Station controlled by baghouse exhausting to stack 152
 - (f) Truck and ladle hopper controlled by baghouse exhausting to stack 150
 - (g) Flux storage batch controlled by baghouse exhausting to stack 151
 - (h) Gas Cleaning System
 - (i) No.2 BOF Roof Monitor 153
 - (j) No.2 BOF Caster Roof Monitor 158
6. No.4 BOF shop:
- (a) No.4 BOF shop off gas controlled by scrubber exhausting to stack 38
 - (b) Secondary ventilation system for No.4 BOF shop controlled by baghouse exhausting to stack 37
 - (c) Hot Metal Station (North) controlled by baghouse exhausting to stack 26
 - (d) Hot Metal Station (South) controlled by baghouse exhausting to stack 27
 - (e) RHOB condensers stack exhausting to stack 32
 - (f) RHOB material handling stack controlled by baghouse exhausting to stack 33
 - (g) Gas Cleaning System 4 BOF
 - (h) Gas Cleaning System 4 BOF RHOB
 - (i) Furnace additive bin loading exhausting to stack 28
 - (j) Torch cut exhausting to stack 31
 - (k) Furnace additive hopper house exhausting to stack 35
 - (l) No.4 BOF Roof Monitor 29
- A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]
-
- This modification to a stationary source does not include construction of any new insignificant activities.
- A.4 Part 70 Permit Applicability [326 IAC 2-7-2]
-
- This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:
- (a) It is a major source, as defined in 326 IAC 2-7-1(22);

- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR §70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.3 Permit Expiration Date [326 IAC 2-2-8(a)(1)]

Pursuant to 326 IAC 2-2-8(a)(1) (PSD Requirements: Source Obligation) this permit to construct shall expire if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is discontinued for a continuous period of eighteen (18) months or more, or if construction is not completed within reasonable time. IDEM may extend the eighteen (18) month period upon satisfactory showing that an extension is justified.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the fourth stove at No.7 Blast Furnace was constructed as proposed in the application and the permit. The emissions units covered in the Significant Source Modification approval including No.7 Blast Furnace equipped with maximum of four stoves may begin operation on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) The Permittee is not required to submit an affidavit of construction for the detailed reline of the No.7 Blast Furnace and this permit authorizes the Permittee to commence operation of the No.7 Blast Furnace using a maximum of three stoves and other upstream and downstream emissions units on completion of the detailed reline in accordance with this permit.
- (c) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is regulated under the provisions of 326 IAC 2-2, the source may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-2 and an Operation Permit Validation Letter is issued.
- (d) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is not regulated under the provisions of 326 IAC 2-2, the source may not begin operation until the source modification has been revised pursuant to the provisions of 326 IAC 2-7-10.5 and the provisions of 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (e) The Permittee shall attach the Operation Permit Validation Letter to this permit.
- (f) The changes covered by this Significant Source Modification will be included in the Part 70 application.

- (g) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:
- (1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.
 - (2) If the Part 70 permit has gone through final USEPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45-day USEPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.
 - (3) If the Part 70 permit has gone through public notice, but has not gone through final USEPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after USEPA review.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within 180 days of commencement of operation following the completion of the detailed reline, including the following information on each emissions unit:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The PMP extension notification does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.
- (c) A copy of the PMP's shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMP whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMP does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation, Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

C.3 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

- (a) Deviations from any permit requirements (for emergencies see Section C - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent.

A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

C.4 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

C.5 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR Part 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.6 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.7 Fugitive Dust Emissions [326 IAC 6-1-11.1]

Pursuant to 326 IAC 6-1-11.1 (Lake County Fugitive Particulate Matter Control Requirements), the particulate matter emissions from source wide activities shall meet the following requirements:

- (a) The average instantaneous opacity of fugitive particulate emissions from a paved road shall not exceed ten percent (10%).
- (b) The average instantaneous opacity of fugitive particulate emissions from an unpaved road shall not exceed ten percent (10%).
- (c) The average instantaneous opacity of fugitive particulate emissions from batch transfer shall not exceed ten percent (10%). Where adequate wetting of the material for fugitive particulate emissions control is prohibitive to further processing or reuse of the material, the opacity shall not exceed ten percent (10%) three (3) minute average. This includes material transfer to the initial hopper of a material processing facility as defined in 326 IAC 6-1-11.1(c) or material transfer for transportation within or outside the source property including, but not limited to, the following:
 - (i) Transfer of slag product for use by asphalt plants:
 - (A) From a storage pile to a front end loader; and
 - (B) From a front end loader to a truck.
 - (ii) Transfer of sinter blend for use at the sinter plant:
 - (A) From a storage pile to a front end loader;
 - (B) From a front end loader to a truck; and
 - (C) From a truck to the initial processing point
 - (iii) Transfer of coal for use at a coal processing line:
 - (A) From a storage pile to a front end loader; and
 - (B) From a front end loader to the initial hopper of a coal processing line.

Compliance with any operation lasting less than three minutes shall be determined as an average of consecutive operations recorded at fifteen second intervals for the duration of the operation.
- (d) The opacity of fugitive particulate emissions from slag and kish handling when transferring from pots and trucks shall not exceed twenty percent (20%) on a six (6) minute average.
- (e) The opacity of fugitive particulate emissions from continuous transfer of material onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average.
- (f) The opacity of fugitive particulate emissions from storage piles shall not exceed ten percent (10%) on a six (6) minute average. These limitations may not apply during periods when application of fugitive particulate control measures are either ineffective or unreasonable due to sustained very high wind speeds. During such periods, the company must continue to

implement all reasonable fugitive particulate control measures and maintain records documenting the application of measures and the basis for a claim that meeting opacity limitation was not reasonable given prevailing wind conditions.

- (g) There shall be a zero (0) percent frequency of visible emission observations of a material during the in-plant transportation of material by truck or rail at any time. Material transported by truck or rail that is enclosed and covered shall be considered in compliance with the in-plant transportation requirement.
- (h) The opacity of fugitive particulate emissions from the in-plant transportation of material by front end loaders and skip hoists shall not exceed ten percent (10%).
- (i) There shall be a zero (0) percent frequency of visible emission observations from a building enclosing all or part of the material processing equipment, except from a vent in the building.
- (j) The PM₁₀ emissions from building vents shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.
- (k) The opacity of particulate emissions from dust handling equipment shall not exceed ten percent (10%).
- (l) Any facility or operation not specified in 326 IAC 6-1-11.1(d) shall meet a twenty percent (20%), three (3) minute average opacity standard.
- (m) PM₁₀ emissions from each material processing stack shall not exceed 0.022 grains per dry standard cubic foot and ten percent (10%) opacity.
- (n) Fugitive particulate matter from the material processing facilities except at a crusher in which a capture system is not used shall not exceed ten percent (10%) opacity.
- (o) Fugitive particulate matter from a crusher in which a capture system is not used shall not exceed fifteen percent (15%) opacity.

The Permittee shall achieve these limits by controlling fugitive particulate matter emissions according to the Fugitive Dust Control Plan. The Fugitive Dust Control Plan shall be updated to include any new emissions units or control strategies before the startup of equipment after this modification.

C.8 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.9 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential before controls of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted.

The provisions of 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4(d), (e), and (f), and 326 IAC 1-7-5(d) are not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.10 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR Part 51, 40 CFR Part 60, 40 CFR Part 61, 40 CFR Part 63, 40 CFR Part 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.11 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.12 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented within 180 days of commencement of operation following the completion of the detailed reline. The Permittee is required to maintain records of production of hot molten metal at No.7 Blast Furnace in accordance with condition D.0.6 and D.0.8 (a) of this permit from the date of commencement of operation after the completion of detailed reline. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.13 Monitoring Methods [326 IAC 3] [40 CFR Part 60] [40 CFR Part 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR Part 60, Appendix A; 40 CFR Part 60, Appendix B; 40 CFR Part 63, or other approved methods as specified in this permit.

**C.14 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)]
[326 IAC 2-7-6(1)]**

- (a) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ($\pm 2\%$) of full scale reading.
- (b) Whenever a condition in this permit requires the measurement of flow rate, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ($\pm 2\%$) of full scale reading.
- (c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

**C.15 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5]
[326 IAC 2-7-6]**

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan under 40 CFR 60/63, such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:
 - (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
 - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan, the Permittee shall amend its Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan to include such response steps taken.

The OMM Plan or Parametric Monitoring and SMM Plan shall be submitted within the time frames specified by the applicable 40 CFR60/63 requirement.
- (b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
 - (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM)

Plan; or

- (2) If none of the reasonable response steps listed in the Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
 - (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, and it will be 10 days or more until the unit or device will be shut down, then the permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
 - (4) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (c) The Permittee is not required to take any further response steps for any of the following reasons:
- (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
 - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.
 - (3) An automatic measurement was taken when the process was not operating.
 - (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section C-Deviations from Permit Requirements and Conditions.
- (e) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.
- (f) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

C.16 Emergency Provisions [326 IAC 2-7-16]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly-signed, contemporaneous operating logs or other relevant evidence that describe the following:
- (1) An emergency occurred, and the Permittee can, to the extent possible, identify the causes of the emergency.
 - (2) The permitted facility was at the time being properly operated.
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.
 - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ and Northwest Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered.

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

Northwest Regional Office
Telephone Number: 219-881-6712
Facsimile Number: 219-881-6745

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile, to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and,
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.

- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.
- (g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

C.17 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to non-compliant stack tests.

The response action documents submitted pursuant to this condition require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.18 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

- (a) Records of all required monitoring data, reports and support information required by this Permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented when the new or modified equipment begins normal operation.

C.19 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

- (a) The source shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (b) The report required in (a) of this Condition and reports required by Conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015
- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (e) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

SECTION D.0 FACILITY OPERATION CONDITIONS-No.7 Blast Furnace operation modification project

Facility Description [326 IAC 2-7-5(15)]:

Increase in production of hot metal by detailed reline project and addition of 4th stove:

- (a) Modifications to existing Blast Furnace identified as No.7, by a detailed reline and the addition of a fourth blast air heating stove to provide additional blast capacity, exhausting to stack 170. This modification is intended to increase production of hot metal from this furnace by 772,620 tons per year.
- (b) Additional 274,178 tons per year of pulverized coal for injection into the No.7 Blast Furnace will be supplied by the existing pulverized coal injection system without any changes to the existing equipment.
- (c) The usage of iron bearing self-fluxing pellets as raw material for molten metal production at No.7 Blast Furnace will increase by 1,295,275 tons per year.
- (d) Increased consumption of coke at No.7 Blast Furnace by 112,132 tons per year, either from the on-site coke plant operated by Indiana Harbor Coke Company or purchased from an offsite producer.
- (e) Utilization of an additional 28,082 MMSCF per year of blast furnace gas at the No.5 Boiler House to generate steam. This usage of additional blast furnace gas will likely reduce the use of natural gas at the No.5 Boiler House
- (f) Any additional blast furnace gas, which cannot be utilized, will be consumed in the three velocity nozzle flare identified as stack 195 at No.7 Blast Furnace.
- (g) Increased lime production at No.1 lime plant and consumption at No.2 and/or No.4 BOF shop by 29,785 tons per year. This will result in an increase of natural gas usage by 146 MMSCF per year.
- (h) The increased hot metal production at No.7 Blast Furnace will be processed at the existing No.2 and/or No.4 Basic Oxygen Furnaces (BOF) shops to produce additional steel. The steel production will increase by approximately 772,620 tons per year.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.0.1 Non-applicability of Major Modification [326 IAC 2-2-1 (x)]

In order to make requirements of 326 IAC 2-2-1 (x) (Major Modification), not applicable to this modification, the cumulative emissions from emissions units listed in D.0.5 of particulate matter (PM), oxides of nitrogen (NO_x) and Lead (Pb) associated with (when handling material to or from) the No.7 Blast Furnace operations shall not exceed the following limitations:

Pollutant	Emissions (in tons per 12 consecutive month period with compliance demonstrated at the end of each month)
PM	1156.62
NO _x	2986.6
Pb	0.94

D.0.2 Non-applicability of Major Modification [326 IAC 2-3-1 (s)]

In order to make the requirements of 326 IAC 2-3-1 (s) (Major Modification), not applicable to this modification, the cumulative emissions from emissions units listed in D.0.5 of particulate matter less than 10 microns diameter (including filterable and condensable components) (PM₁₀) and sulfur dioxide (SO₂) associated with (when handling material to or from) the No.7 Blast Furnace operation shall not exceed the following limitations:

Pollutant	Emissions (in tons per 12 consecutive month period with compliance demonstrated at the end of each month)
PM ₁₀	1460.42
SO ₂	2,336.2

D.0.3 Volatile Organic Compounds (VOC)– non-applicability of De-minimis [326 IAC 2-3-1 (l)]

In order to make the requirements of 326 IAC 2-3-1 (l) (De-minimis), not applicable to this modification, the cumulative emissions from emissions units listed in D.0.5 of VOC associated with (when handling material to or from) the No.7 Blast Furnace operation shall not exceed 54.44 tons per 12 consecutive month period with compliance demonstrated at the end of each month.

D.0.4 Carbon Monoxide (CO)– Air quality impacts and increment consumption [326 IAC 2-2-4, 5 and 6]

Pursuant to 326 IAC 2-2-4, 2-2-5, 2-2-6 (PSD Requirements: Air quality analysis, Air quality impacts and increment consumption), the cumulative emissions from emissions units listed in D.0.5 of CO associated with (when handling material to or from) No.7 Blast Furnace operation shall not exceed 33968.54 tons per 12 consecutive month period with compliance demonstrated at the end of each month

D.0.5 Emissions units subject to the emissions limitations [326 IAC 2-2-1 (x)] [326 IAC 2-3-1 (s)] [326 IAC 2-3-1 (l)] [326 IAC 2-2-4, 5 and 6]

The emissions limitations shown in D.0.1, D.0.2, D.0.3 and D.0.4 apply to the combined emissions from the following emissions units only to the extent that the operation and throughput of these emissions units can be directly attributed to (when handling material to or from) the operation and throughput at the No.7 Blast Furnace:

1. No.7 Blast Furnace:
 - (a) Casthouse No.7 Blast Furnace controlled by:
 - (A) east baghouse exhausting to stack 167
 - (B) west baghouse exhausting to stack 166
 - (b) Coke screening station controlled by baghouse exhausting to stack 169
 - (c) Stockhouse coke handling controlled by baghouse exhausting to stack 172
 - (d) Stockhouse pellet handling controlled by baghouse exhausting to stack 168
 - (e) No.7 Blast Furnace stoves exhausting to stack 170
 - (f) Slag pit operation
 - (g) Slag granulator and pelletizer operation
 - (h) Gas Cleaning System
 - (i) Flare stack 195
 - (j) Roof Monitor 171
2. No.5 Boiler House:

No.5 Boiler House exhausting to stack 134, to the extent increases in the usage of blast furnace gas from No.7 Blast Furnace at this unit.
3. Pulverized Coal Injection plant:
 - (a) Coal transfer A controlled by baghouse exhausting to stack 185

- (b) Coal storage C controlled by baghouse exhausting to stack 186
 - (c) Coal pulverizer D controlled by baghouse exhausting to stack 187
 - (d) Coal pulverizer E controlled by baghouse exhausting to stack 188
 - (e) Coal storage F controlled by baghouse exhausting to stack 189
 - (f) Coal storage G controlled by baghouse exhausting to stack 190
 - (g) Coal unloading system exhausting to stack 192
4. No.1 Lime Plant:
- (a) Lime plant storage silo controlled by baghouse exhausting to stack 47
 - (b) No.1 and No.2 Lime Kiln controlled by two (2) baghouses exhausting to stack 45 and 49
 - (c) Lime plant fugitive control micro-pulse controlled by baghouse exhausting to stack 46
 - (d) Lime plant truck loadout controlled by baghouse exhausting to stack 48
5. No.2 BOF shop:
- (a) No.10 Basic Oxygen Furnace controlled by scrubber exhausting to stack 147
 - (b) No.20 Basic Oxygen Furnace controlled by scrubber exhausting to stack 148
 - (c) Ladle metallurgy facility station controlled by baghouse exhausting to stack 154
 - (d) Secondary ventilation system for No.2 BOF shop controlled by scrubber exhausting to stack 149
 - (e) Charge Aisle and Hot Metal Station controlled by baghouse exhausting to stack 152
 - (f) Truck and ladle hopper controlled by baghouse exhausting to stack 150
 - (g) Flux storage batch controlled by baghouse exhausting to stack 151
 - (h) Gas Cleaning System
 - (i) No.2 BOF Roof Monitor 153
 - (j) No.2 BOF Caster Roof Monitor 158
6. No.4 BOF shop:
- (a) No.4 BOF shop off gas controlled by scrubber exhausting to stack 38
 - (b) Secondary ventilation system for No.4 BOF shop controlled by scrubber exhausting to stack 37
 - (c) Hot Metal Station baghouse (North) exhausting to stack 26
 - (d) Hot Metal Station baghouse (South) exhausting to stack 27
 - (e) RHOB condensers stack exhausting to stack 32
 - (f) RHOB material handling stack exhausting to stack 33
 - (g) Gas Cleaning System 4 BOF
 - (h) Gas Cleaning System 4 BOF RHOB
 - (i) Furnace additive bin loading exhausting to stack 28
 - (j) Torch cut exhausting to stack 31
 - (k) Furnace additive hopper house exhausting to stack 35
 - (l) No.4 BOF Roof Monitor 29

D.0.6 Operation Condition [326 IAC 2-2-3] [326 IAC 2-2-1 (x)] [326 IAC 2-3-1 (s)] [326 IAC 2-3-1 (l)] [326 IAC 2-2-4, 5 and 6]

Pursuant to 326 IAC 2-2-3, 326 IAC 2-2-1 (x), 326 IAC 2-3-1 (s), 326 IAC 2-3-1 (l), 326 IAC 2-2-4, 5 and 6, the production of hot molten metal from the No.7 Blast Furnace shall not exceed four million four hundred and seventeen thousand (4,417,000) tons per 365 consecutive days, with compliance demonstrated at the end of each day (a consecutive 24 hour period).

Compliance Determination Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.0.7 Emissions Factors and Performance Testing

- (a) The Permittee shall use the emissions factors documented in Appendix-A of this permit in conjunction with the actual throughput of the emissions units in D.0.5 directly attributed to the operation of No.7 Blast Furnace to determine compliance with emissions limitations in conditions D.0.1, D.0.2, D.0.3 and D.0.4.
- (b) Pursuant to IC 13-15-7-1, IC 13-15-7-2, 326 IC 2-1.1-9(2) and 326 IAC 2-1.1-11 the IDEM, OAQ reserves the authority to require the Permittee to conduct performance tests to verify the emissions factors in Appendix-A of this permit.
- (c) After issuance of this permit, if the performance test results indicate a discrepancy between the emission factors in Appendix-A and the actual emissions rate observed during the test, the Permittee shall inform IDEM, OAQ, Permits Branch of such variation within 90 days of the submission of performance test report to IDEM.
- (d) Pursuant to IC 13-15-7-1, IC 13-15-7-2 and 326 IC 2-1.1-9(2), the IDEM, OAQ may re-evaluate the permit conditions and emissions factors in Appendix-A. IDEM, OAQ may, at its discretion, use the authority under IC 13-15-7-2, IC 13-15-7-2 and/or 326 IAC 2-1.1-9(2) to re-open and revise the permit to more closely reflect the actual performance test results using permit amendment or modification procedures.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.0.8 Record Keeping Requirements

- (a) To document compliance with D.0.6, the Permittee shall keep records of molten metal produced at the No.7 Blast Furnace in terms of tons of metal per three hundred and sixty five (365) days. These records shall be kept for at least a period of 60 months.
- (b) In order to document compliance with conditions D.0.1, D.0.2, D.0.3, D.0.4 and D.0.5 the Permittee shall:
 - (1) Maintain records of the throughput or production that is directly attributed to (when handling material to or from) the operation and throughput at No.7 Blast Furnace at the emissions units listed in D.0.5.
 - (2) Maintain records of the emissions on monthly basis using the emissions factors in Appendix A in conjunction with throughput or production in item (1) of this sub-condition to calculate emissions from No.7 Blast Furnace operation modification project on monthly basis.
 - (3) These records shall be kept for at least a period of 60 months.
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.0.9 Reporting Requirements

In the event the emissions recorded per D.0.8 (b)(2) in any consecutive 12 month period exceed the emissions limitations specified in D.0.1, D.0.2, D.0.3 or D.0.4, the Permittee shall submit detailed report along with pertinent records to the addresses listed in Section C - General Reporting Requirements and IDEM, OAQ, Permits Branch, within sixty (60) days of end of period being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.1 FACILITY OPERATION CONDITIONS- No.7 Blast Furnace Operation

Facility Description [326 IAC 2-7-5(15)]:

- (a) Modifications to existing Blast Furnace identified as No.7, by a detailed reline and the addition of a fourth blast air heating stove to provide additional blast capacity, exhausting to stack 170. This modification is intended to increase production of hot metal from this furnace by 772,620 tons per year.
- (b) The usage of iron bearing self-fluxing pellets' as raw material for molten metal production at No.7 Blast Furnace will increase by 1,295,275 tons per year.
- (c) Increased consumption of coke at No.7 Blast Furnace by 112,132 tons per year, either from the on-site coke plant operated by Indiana Harbor Coke Company or purchase from an offsite producer.
- (d) Utilization of an additional 28,082 MMSCF per year of blast furnace gas at the No.5 Boiler House to generate steam. This usage of additional blast furnace gas will likely reduce the use of natural gas at the No.5 Boiler House
- (e) Any additional blast furnace gas, which cannot be utilized, will be consumed in three velocity nozzle flares identified as stack 195 at No.7 Blast Furnace.

No.7 Blast Furnace list of equipment:

- (a) Casthouse No.7 Blast Furnace controlled by:
 - (A) east baghouse exhausting to stack 167
 - (B) west baghouse exhausting to stack 166
- (b) Coke screening station controlled by baghouse exhausting to stack 169
- (c) Stockhouse coke handling controlled by baghouse exhausting to stack 172
- (d) Stockhouse pellet handling controlled by baghouse exhausting to stack 168
- (e) No.7 Blast Furnace stoves exhausting to stack 170
- (f) Slag pit operation
- (g) Slag granulator and pelletizer operation
- (h) Gas Cleaning System
- (i) Flare stack 195
- (j) Roof Monitor 171

No.5 Boiler House list of equipment:

No.5 Boiler House exhausting to stack 134, to the extent increases in the usage of blast furnace gas from No.7 Blast Furnace at this unit.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Carbon Monoxide (CO) - Best Available Control Technology [326 IAC 2-2-3]

- (a) Pursuant to 326 IAC 2-2-3 (Control Technology Review: Requirements) the carbon monoxide emissions from the various stacks associated with the No.7 Blast Furnace shall not exceed the following limitations:

Stack ID, associated equipment	Type of fuel combusted at the equipment	CO emissions limitations (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	13.7
	Natural gas	84
	Combination gas (a mix of natural gas and blast furnace gas)	$13.7 \times \text{Usage of BFG (MMSCF)} + 84 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	13.7
	Natural Gas	84
	Combination gas (a mix of natural gas and blast furnace gas)	$13.7 \times \text{Usage of BFG (MMSCF)} + 84 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)

Stack ID, associated equipment	CO emissions limitations	Units
167, Cast house No.7 Blast Furnace east baghouse	0.56	pound/ton of hot metal produced
166, Cast house No.7 Blast Furnace west baghouse	0.56	pound/ton of hot metal produced

- (b) If the stack tests required under condition D.1.12 show that the CO emission limitations in condition D.1.1 (a) are not achievable in practice, the Permittee can request the Department to re-evaluate the CO emissions limitations in D.1.1 (a). The department may, at its discretion, use the authority under IC 13-15-7-2 to re-open and revise the limit to more closely reflect the actual stack test results. The Department will provide an opportunity for public notice and comment prior to finalizing any permit decision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to this permit modification.

D.1.2 Operation Condition – Best Available Control Technology [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (Control Technology Review: Requirements) the production of hot molten metal from the No.7 Blast Furnace shall not exceed four million four hundred and seventeen thousand (4,417,000) tons per 365 consecutive days, with compliance demonstrated at the end of each day (a consecutive 24 hour period).

D.1.3 Lake County PM₁₀ emission requirements [326 IAC 6-1-10.1(d)]

Pursuant to 326 IAC 6-1-10.1(d)(19), PM₁₀ and total suspended particulate (TSP) emissions from the No. 7 Blast Furnace operations including the increased capacity shall not exceed the following:

- (a) PM₁₀ emissions from the No. 7 blast furnace stockhouse pellet baghouse (168) shall not exceed 0.0052 grains per dry standard cubic foot and 4.00 pounds per hour.
- (b) TSP emissions from the No. 7 blast furnace stockhouse coke baghouse (172) shall not exceed 0.01 grains per dry standard cubic foot and 2.00 pounds per hour.
- (c) TSP emissions from the No. 7 blast furnace coke screening baghouse (169) shall not exceed 0.007 grains per dry standard cubic foot and 4.200 pounds per hour.
- (d) PM₁₀ emissions from the No. 7 blast furnace (West (canopy) baghouse) (166) shall not exceed 0.003 grains per dry standard cubic foot and 11.22 pounds per hour.
- (e) TSP emissions from the No. 7 blast furnace (East (casthouse) baghouse) (167) shall not

exceed 0.011 grains per dry standard cubic foot and 22.00 pounds per hour.

- (f) PM₁₀ emissions from the stack serving No. 7 blast furnace stove stack (170) shall not exceed 0.0076 pounds/MMBtu and 6.32 pounds per hour.
- (g) PM₁₀ emissions from the No. 5 Boiler house 501-503 shall not exceed 0.013 lbs/ MMBtu and 18.05 pounds per hour

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

D.1.4 Particulate Matter (PM) [326 IAC 6-1-2]

Pursuant 326 IAC 6-1-2, the No. 7 Blast Furnace Casthouse Roof Monitor (171) shall not discharge to the atmosphere any gases which contain particulate matter in excess of 0.03 grains per dry standard cubic foot of exhaust air.

D.1.5 Opacity [326 IAC 6-1-10.1(e)]

Pursuant to 326 IAC 6-1-10.1(e), the following opacity limits shall be complied with and shall take precedence over those in 326 IAC 5-1-2 with which they conflict. The opacity for the No. 7 Blast Furnace operations (Casthouse Roof Monitor (171)) shall not exceed fifteen percent (15%) based on a six (6) minute average.

D.1.6 No.7 Blast Furnace Specific Control Requirements [326 IAC 6-1-10.1(k)(5)(F)]

Pursuant to 326 IAC 6-1-10.1(k)(5)(F), tapping emissions from the No. 7 Blast Furnace Casthouse shall be controlled by a hood vented to a baghouse. Canopy hoods shall be installed above each of the four (4) furnace tap holes. The hoods shall be ducted to a new three hundred seventy thousand (370,000) actual cubic feet per minute minimum design flow rate baghouse. Each hood shall be located just above the casthouse crane and extend via vertical sheeting to the casthouse roof. The system shall provide a minimum of one hundred eighty-five thousand (185,000) actual cubic feet per minute of air flow (fume capture) to each hood, when the corresponding tap hole is being drilled or plugged.

D.1.7 Carbon Monoxide [326 IAC 9-1-2(2)]

Pursuant to 326 IAC 9-1-2(a)(2), No.7 Blast Furnace waste gas stream shall be burned in one (1) of the following:

- (A) Boiler.
- (B) Direct-flame afterburner.
- (C) Recuperative incinerator.

In instances where carbon monoxide destruction is not required, carbon monoxide emissions shall be released at such elevation that the maximum ground level concentration from a single source shall not exceed twenty percent (20%) of the maximum one (1) hour Indiana ambient air quality value for carbon monoxide.

D.1.8 Sulfur Dioxide [326 IAC 7-4-1.1(c)(10)(C)]

- (a) Pursuant to 326 IAC 7-4-1.1(c)(10)(C), the SO₂ emissions from the No. 7 blast furnace stove stack (170) shall not exceed 0.146 pounds per MMBtu.
- (b) SO₂ emissions from No. 5 Boiler house 501-503, shall not exceed 0.104 lbs/MMBtu.

D.1.9 General Provisions Relating to NESHAP [326 IAC 20-1][40 CFR Part 63, Subpart A]

The provisions of 40 CFR 63 Subpart A - General Provisions, which are incorporated as 326 IAC 20-

1-1, apply to the No.7 Blast Furnace, described in this section, as an 'existing source' except when otherwise specified in 40 CFR 63 Subpart FFFFF.

D.1.10 Emissions Standards for Integrated Iron and Steel Manufacturing [40 CFR Part 63, Subpart FFFFF]

The No.7 Blast Furnace is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Integrated Iron and Steel Manufacturing, (40 CFR 63, Subpart FFFFF), effective May 20, 2003. Pursuant to this rule, the Permittee must comply with Subpart FFFFF by May 22, 2006.

D.1.11 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.12 Testing Requirements [326 IAC 3-6] [326 IAC 2-7-6(1), (6)]

- (a) Within 60 days of achieving stable production rate after reline project completion, but no later than 180 days after the start of operation after the completion of reline project at the No.7 Blast Furnace the Permittee shall perform CO emissions testing, utilizing methods approved by the Commissioner to show compliance with condition D.1.1 for stack 170 for the Stoves, stack 134 for the No.5 Boiler House, stacks 166 and 167 the West and East baghouses for the No.7 Blast Furnace casthouse. Testing for the fuel combustion emission units shall be performed when the fuel having worst case emission factor is utilized. Testing shall be conducted in accordance with Section C –Performance Testing.
- (b) Within 60 days of achieving stable production rate after the start of four stove operation, but no later than 180 days after the start of four stove operation at the No.7 Blast Furnace the Permittee shall perform CO emissions testing, utilizing methods approved by the Commissioner to show compliance with condition D.1.1 for stack 170 for the Stoves, stack 134 for the No.5 Boiler House, stacks 166 and 167 the West and East baghouses for the No.7 Blast Furnace casthouse. Testing for the fuel combustion emission units shall be performed when the fuel having worst case emission factor is utilized. Testing shall be conducted in accordance with Section C –Performance Testing.

D.1.13 Carbon monoxide emissions – Compliance Requirements [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (Control Technology Review: Requirements) the carbon monoxide emissions, associated with the No.7 Blast Furnace shall be minimized, by utilizing the Blast Furnace Gas (BFG) produced at No. 7 Blast Furnace in the stoves at No.7 Blast Furnace or at No. 5 Boiler House. When the excess BFG (not burned in the stoves) cannot be beneficially used for steam generation, it will be burned at the No. 7 Blast Furnace flare stack (195).

D.1.14 Particulate Matter (PM)

- (a) The casthouse No. 7 blast furnace east baghouse (167) for PM control shall be in operation at all times that the No. 7 blast furnace casthouse is in operation.
- (b) The casthouse No. 7 blast furnace west baghouse (166) for PM control shall be in operation at all times that the No. 7 blast furnace casthouse is in operation.
- (c) The No. 7 blast furnace coke screening station baghouse (169) for PM control shall be in operation at all times that these processes are in operation.
- (d) The No. 7 blast furnace stockhouse coke handling baghouse (172) for PM control shall be in operation at all times that these processes are in operation.

- (e) The No. 7 blast furnace stockhouse pellet handling baghouse (168) for PM control shall be in operation at all times that these processes are in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.15 Continuous Compliance Plan [326 IAC 6-1-10.1]

Pursuant to 326 IAC 6-1-10.1(l), the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP).

- (a) Pursuant to 326 IAC 6-1-10.1(l), a CCP shall also be submitted by any source in Lake County for facilities that perform manufacturing operations in a building or structure such that the total uncontrolled PM₁₀ emissions from all such operations amount to ten (10) tons per year or more and that could potentially escape into the atmosphere through roof vents and other openings. The uncontrolled PM₁₀ emissions shall be estimated with AP-42, "Compilation of Air Pollutant Emission Factors, Volume I, (Stationary Point and Area Sources)", 4th Edition, September 1985, (and succeeding amendments) emission factors or other documentable emission factors acceptable to the commissioner.
- (b) Pursuant to 326 IAC 6-1-10.1(p) the Permittee shall include the following information or applicable procedures, or commit to the following actions:
 - (A) Pursuant to 326 IAC 6-1-10.1(p)(3)(C), the plans for blast furnaces shall include the following:
 - (1) Describe procedures, including frequency, for inspection of the following elements of a capture system:
 - (i) Pressure sensors.
 - (ii) Dampers.
 - (iii) Damper switches.
 - (iv) Hood and ductwork for the presence of holes.Maintain records of the maintenance and any repairs made.
 - (2) Describe procedures used to minimize dirt and debris accumulation on the facility floor.
 - (3) Describe any fume suppression system, including the process or emission point being controlled, the location, and the inert gas or steam application rate and the monitoring method. Fume suppression system means the equipment comprising any system used to inhibit the generation of emissions from steelmaking facilities with an inert gas, flame, or steam blanket applied to the surface of molten iron or steel.
 - (4) Describe the record keeping for the following elements of the iron production cycle:
 - (i) Time of hole drilling.
 - (ii) Time of tapping.
 - (iii) Time of hole plugging.
 - (5) Describe the blast furnace inspection, repair, and maintenance schedule for the following elements:
 - (i) Tuyres.
 - (ii) Bleeder valves.
 - (iii) Large and small bells.
 - (iv) Uptakes and downcomers (to minimize backdrafting).
 - (v) Standby devices.
 - (6) Describe the procedures used to inspect and operate the blast furnace gas cleaning equipment, such as dust catchers and scrubbing equipment to

assure operation within design parameters.

- (B) Pursuant to 326 IAC 6-1-10.1(q), the plans for the particulate matter control equipment shall provide that the following control equipment related information will be maintained at the source's property and will be available for inspection by department personnel:
- (1) Startup, shutdown, and emergency shutdown procedures.
 - (2) Sources shall notify the department fifteen (15) days in advance of startup of either new control equipment or control equipment to which major modifications have been made.
 - (3) Manufacturer's recommended inspection procedures, preventive and corrective maintenance procedures, and safety devices and procedures, such as sensors, alarm systems, and bypass systems. If manufacturer's recommendations are not available, procedures shall be developed by the source.
 - (4) Contents of the operator's training program and the frequency with which the training is held.
 - (5) A list of spare parts available at the facility.
 - (6) A list of control equipment safety devices, for example, high temperature sensors and alarm systems, exhaust gas stream bypass system, or safety interlock system.
 - (7) Monitoring and recording devices and/or instruments to monitor and record control equipment operating parameters specified in subsection (n)(4).
- (C) Pursuant to 326 IAC 6-1-10.1(r)(1), the plans for a facility controlled with a baghouse shall include the recording, inspection, and maintenance procedures to be consistent with the requirements of subsection 326 IAC 6-1-10.1(m), such as the following:
- (1) Operating parameters, such as the following:
 - (i) Pressure drop across the baghouse.
 - (ii) Gas flow rate at baghouse inlet.
 - (iii) Gas temperatures at inlet.A CCP shall identify the monitors and instrumentation, and their location, accuracy, precision, and calibration frequency. A CCP shall also include a description of any visible emission evaluation program.
 - (2) Baghouse cleaning system. A complete description of the cleaning system, including such information as intensity, duration, frequency, and method of activation.
 - (3) Baghouse inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule must be approved by the department. Inspections shall include the following:
 - (i) Daily inspections shall include the following:
 - (AA) Pressure drop.
 - (BB) Fan amperage.
 - (CC) Cleaning cycle.
 - (DD) Compressed air on pulse jet baghouses for values outside of the operating ranges.
 - (EE) Dust discharge equipment for proper operation.
 - (FF) General check for abnormal audible and visual conditions.

- (ii) Weekly inspections of the following:
 - (AA) Moving parts on discharge system.
 - (BB) Bypass and isolation damper operation.
 - (CC) Bag tension.
 - (DD) Compressed air lines, oilers, and filters.
 - (EE) Manometer lines.
 - (FF) Temperature indicating equipment.
 - (GG) Bag cleaning sequence.
 - (HH) Drive components on fans.
- (iii) Monthly inspections of the following:
 - (AA) Bag seating condition.
 - (BB) Moving parts on shaker baghouses.
 - (CC) Fan corrosion and blade wear.
 - (DD) Hoses and clamps.
 - (EE) Bags for leaks and holes.
 - (FF) Bag housing for corrosion.
- (iv) Quarterly inspections of the following:
 - (AA) Bags.
 - (BB) Ducts for dust build-up.
 - (CC) Damper valves for proper setting.
 - (DD) Door gaskets.
 - (EE) Baffle plate for wear.
- (v) Annual inspection of the following:
 - (AA) Welds and bolts.
 - (BB) Hoppers for wear.
 - (CC) Cleaning parts for wear.

D.1.16 Visible Emissions Notations [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) Visible emission notations of the casthouse No. 7 blast furnace west baghouse (166) and casthouse No. 7 blast furnace east baghouse (167) stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

D.1.17 Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the casthouse No. 7 Blast Furnace west baghouse (166), at least once per shift when the above processes are in operation. When for any one reading, the pressure drop across the

baghouse is outside the normal range of 1.1-2.0 kPa or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

- (b) The Permittee shall record the pressure drop across the baghouse used in conjunction with the casthouse No. 7 blast furnace east baghouse (167), at least once per shift when the above processes are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 0.4-1.3 kPa or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.1.18 Baghouse Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of all bags controlling the casthouse No. 7 blast furnace west baghouse (166) and casthouse No. 7 blast furnace east baghouse (167). Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.1.19 Broken or Failed Bag Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions

of this permit (Section C - Emergency Provisions).

D.1.20 Blast Furnace Gas Flare Monitoring [326 IAC 9-1-2][326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

The Permittee shall install and maintain a monitor to detect the presence of a flame at the flare tips (3 flares) at the No. 7 Blast Furnace flare (195). The presence of a flame at the flare tip shall be monitored at all times when the vapors are being vented to the flare. The monitor shall be equipped with an automatic alarm, which activates when the presence of a flame is not detected during periods when vapors are being vented to the flare. Whenever the alarm is activated, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.21 Record Keeping Requirements

- (a) Pursuant to 326 IAC 7-4-1.1, in order to document compliance with Condition D.1.8, the Permittee shall maintain records of the blast furnace gas, fuel oil, and natural gas usage for each day at each facility.
- (b) To document compliance with D.1.2, the Permittee shall keep records of molten metal produced at the No.7 Blast Furnace in terms of tons of metal per three hundred and sixty five (365) days. These records shall be kept for at least a period of 60 months.
- (c) To document compliance with D.1.15, the Permittee shall maintain at the source a copy of the Continuous Compliance Plan (CCP) and keep record of the inspections and monitoring in accordance with the Permittee's CCP.
- (d) In order to document compliance with Condition D.1.16, the Permittee shall maintain records of once per shift visible emission notations of the casthouse No. 7 blast furnace west baghouse (166) and casthouse No. 7 blast furnace east baghouse (167) stack exhaust(s).
- (e) In order to document compliance with condition D.1.17, the Permittee shall maintain records of the differential static pressure once per shift.
- (f) In order to document compliance with Condition D.1.18, the Permittee shall maintain records of the results of the inspections required under Condition D.1.18.
- (g) In order to document compliance with condition D.1.20, the Permittee shall maintain records of the occurrence of alarm events at the flare and response steps taken to correct the same.
- (h) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.22 Reporting Requirements

A quarterly report shall be submitted containing the calculated SO₂ emission rate in lb/MM Btu for each facility for each day in quarter, total fuel usage for each type at each facility each day and any violations of limit 326 IAC 7-4-1.1(c)(10)(C), in order to document compliance with Conditions D.1.8 and D.1.21(a). The quarterly report shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible

official” as defined by 326 IAC 2-7-1(34).

SECTION D.2 FACILITY OPERATION CONDITIONS- Pulverized Coal Injection Plant

Facility Description [326 IAC 2-7-5(15)]:

Additional 274,178 tons per year of pulverized coal for injection into the No.7 Blast Furnace will be supplied by the existing pulverized coal injection system without any changes to the existing equipment.

Pulverized Coal Injection plant list of equipment:

- (a) Coal transfer A controlled by baghouse exhausting to stack 185
- (b) Coal storage C controlled by baghouse exhausting to stack 186
- (c) Coal pulverizer D controlled by baghouse exhausting to stack 187
- (d) Coal pulverizer E controlled by baghouse exhausting to stack 188
- (e) Coal storage F controlled by baghouse exhausting to stack 189
- (f) Coal storage G controlled by baghouse exhausting to stack 190
- (g) Coal unloading system exhausting to stack 192

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Lake County PM₁₀ emission requirements [326 IAC 6-1-10.1(d)]

Pursuant to 326 IAC 6-1-10.1(d)(19), PM₁₀ emissions from the PCI operations shall not exceed the following:

- (a) System A-conveyor transfer with baghouse control (185) shall not exceed 0.003 grains per dry standard cubic foot and 0.17 pounds per hour;
- (b) System C-conveyors and raw coal bins with baghouse control (186) shall not exceed 0.003 grains per dry standard cubic foot and 0.23 pounds per hour;
- (c) System D-coal pulverizer with cyclone and baghouse control (187) shall not exceed 0.0015 grains per dry standard cubic foot and 0.93 pounds per hour;
- (d) System E-coal pulverizer with cyclone and baghouse control (188) shall not exceed 0.0015 grains per dry standard cubic foot and 0.93 pounds per hour;
- (e) System F-No. 7 blast furnace coal storage bin No. 1 with baghouse control (189) shall not exceed 0.003 grains per dry standard cubic foot and 0.09 pounds per hour; and
- (f) System G-No. 7 blast furnace coal storage bin No. 2 with baghouse control (190) shall not exceed 0.003 grains per dry standard cubic foot, 0.09 pounds per hour.

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

D.2.2 Particulate Matter (PM) [326 IAC 6-1-2]

Pursuant 326 IAC 6-1-2, the Coal unloading system exhausting to stack (192) shall not discharge to the atmosphere any gases which contain particulate matter in excess of 0.03 grains per dry standard cubic foot of exhaust air.

D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.2.4 Particulate Matter

- (a) In order to comply with D.2.1, the baghouses for PM₁₀ control shall be in operation and control the PCI Systems A-G except B (which was never built) are in operation.
- (b) Pursuant to CP 089-2016-00316 issued on August 22, 1991, the equipment listed in the start of this section shall be operated and maintained in accordance with the manufacturer's specifications.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.5 Continuous Compliance Plan [326 IAC 6-1-10.1]

Pursuant to 326 IAC 6-1-10.1(l), the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP).

- (a) Pursuant to 326 IAC 6-1-10.1(l), a CCP shall also be submitted by any source in Lake County for facilities that perform manufacturing operations in a building or structure such that the total uncontrolled PM₁₀ emissions from all such operations amount to ten (10) tons per year or more and that could potentially escape into the atmosphere through roof vents and other openings. The uncontrolled PM₁₀ emissions shall be estimated with AP-42, "Compilation of Air Pollutant Emission Factors, Volume I, (Stationary Point and Area Sources)", 4th Edition, September 1985, (and succeeding amendments) emission factors or other document-able emission factors acceptable to the commissioner.
- (b) Pursuant to 326 IAC 6-1-10.1(p) the Permittee shall include the following information or applicable procedures, or commit to the following actions:
 - (A) Pursuant to 326 IAC 6-1-10.1(q), the plans for the particulate matter control equipment shall provide that the following control equipment related information will be maintained at the source's property and will be available for inspection by department personnel:
 - (1) Startup, shutdown, and emergency shutdown procedures.
 - (2) Sources shall notify the department fifteen (15) days in advance of startup of either new control equipment or control equipment to which major modifications have been made.
 - (3) Manufacturer's recommended inspection procedures, preventive and corrective maintenance procedures, and safety devices and procedures, such as sensors, alarm systems, and bypass systems. If manufacturer's recommendations are not available, procedures shall be developed by the source.
 - (4) Contents of the operator's training program and the frequency with which the training is held.
 - (5) A list of spare parts available at the facility.
 - (6) A list of control equipment safety devices, for example, high temperature sensors and alarm systems, exhaust gas stream bypass system, or safety interlock system.
 - (7) Monitoring and recording devices and/or instruments to monitor and record

control equipment operating parameters specified in subsection (n)(4).

- (B) Pursuant to 326 IAC 6-1-10.1(r)(1), the plans for a facility controlled with a baghouse shall include the recording, inspection, and maintenance procedures to be consistent with the requirements of subsection 326 IAC 6-1-10.1(m), such as the following:
- (1) Operating parameters, such as the following:
 - (i) Pressure drop across the baghouse.
 - (ii) Gas flow rate at baghouse inlet.
 - (iii) Gas temperatures at inlet.A CCP shall identify the monitors and instrumentation, and their location, accuracy, precision, and calibration frequency. A CCP shall also include a description of any visible emission evaluation program.
 - (2) Baghouse cleaning system. A complete description of the cleaning system, including such information as intensity, duration, frequency, and method of activation.
 - (3) Baghouse inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule must be approved by the department. Inspections shall include the following:
 - (i) Daily inspections shall include the following:
 - (AA) Pressure drop.
 - (BB) Fan amperage.
 - (CC) Cleaning cycle.
 - (DD) Compressed air on pulse jet baghouses for values outside of the operating ranges.
 - (EE) Dust discharge equipment for proper operation.
 - (FF) General check for abnormal audible and visual conditions.
 - (ii) Weekly inspections of the following:
 - (AA) Moving parts on discharge system.
 - (BB) Bypass and isolation damper operation.
 - (CC) Bag tension.
 - (DD) Compressed air lines, oilers, and filters.
 - (EE) Manometer lines.
 - (FF) Temperature indicating equipment.
 - (GG) Bag cleaning sequence.
 - (HH) Drive components on fans.
 - (iii) Monthly inspections of the following:
 - (AA) Bag seating condition.
 - (BB) Moving parts on shaker baghouses.
 - (CC) Fan corrosion and blade wear.
 - (DD) Hoses and clamps.
 - (EE) Bags for leaks and holes.
 - (FF) Bag housing for corrosion.
 - (iv) Quarterly inspections of the following:
 - (AA) Bags.
 - (BB) Ducts for dust build-up.
 - (CC) Damper valves for proper setting.
 - (DD) Door gaskets.
 - (EE) Baffle plate for wear.
 - (v) Annual inspection of the following:

- (AA) Welds and bolts.
- (BB) Hoppers for wear.
- (CC) Cleaning parts for wear.

D.2.6 Visible Emissions Notations [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) Visible emission notations of the Coal pulverizer D baghouse (187) and Coal pulverizer E baghouse (188) exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

D.2.7 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the Coal pulverizer D (187) and Coal pulverizer E (188) at least once per shift when the coal pulverizers are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 0.5 and 1.5 kPa or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.2.8 Baghouse Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of all bags controlling the Coal pulverizer D (187) and Coal pulverizer E (188) process operations. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.2.9 Broken or Failed Bag Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Within eight (8) business hours of the determination of failure, response steps according to the timetable

described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

- (b) For single compartment baghouses, if failure is indicated by a significant drop in the bathhouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C - Emergency Provisions).

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.10 Record Keeping Requirements

- (a) To document compliance with D.2.5, the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP) and keep records of the inspections and monitoring in accordance with the Permittee's CCP.
- (b) In order to document compliance with Condition D.2.6, the Permittee shall maintain records of once per shift visible emission notations of the Coal pulverizer D baghouse (187) and Coal pulverizer E baghouse (188) exhausts.
- (c) In order to document compliance with Condition D.2.7, the Permittee shall maintain the records once per shift of the total static pressure drop across the baghouse during normal operation.
- (d) In order to document compliance with Condition D.2.8, the Permittee shall maintain records of the results of the inspections required under Condition D.2.8.
- (e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.3 FACILITY OPERATION CONDITIONS- No.1 Lime Plant

Facility Description [326 IAC 2-7-5(15)]:

Increase in lime production at No.1 lime plant and consumption at No.2 and/or No.4 BOF shop by 29,785 tons per year. This will result in increase of natural gas usage by 146 MMSCF per year.

No.1 Lime Plant list of equipment:

- (a) Lime plant storage silo controlled by baghouse exhausting to stack 47
- (b) No.1 and No.2 Lime Kiln controlled by two (2) baghouses exhausting to stack 45 and 49
- (c) Lime plant fugitive control micro-pulse controlled by baghouse exhausting to stack 46
- (d) Lime plant truck loadout controlled by baghouse exhausting to stack 48

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 Lake County PM₁₀ emission requirements [326 IAC 6-1-10.1(d)]

Pursuant to 326 IAC 6-1-10.1(d)(19), the No. 1 Lime Plant operations shall not exceed the following:

- (a) combined PM₁₀ emissions from the No.1 and No. 2 Kiln baghouses stacks (45) and (49) shall not exceed 0.110 pounds per ton and 7.149 pounds per hour
- (b) PM₁₀ emissions from the Storage Silo baghouse (47) shall not exceed 0.085 pounds per ton and 5.530 pounds per hour

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

D.3.2 Sulfur Dioxide [326 IAC 7-4-1.1]

Pursuant to 326 IAC 7-4-1.1(c)(10)(C), the allowable sulfur dioxide (SO₂) emission rate from the No. 1 and No. 2 Lime Kiln baghouses (45) and (49) shall not exceed 0.46 lb/MMBtu.

D.3.3 General Provisions Relating to NESHAP [326 IAC 20-1][40 CFR Part 63, Subpart A]

The provisions of 40 CFR 63 Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the No.1 Lime Plant, described in this section, as an 'existing source' except when otherwise specified in 40 CFR 63 Subpart AAAAA.

D.3.4 Emissions Standards for Lime Manufacturing Plants [40 CFR Part 63, Subpart AAAAA]

The No.1 Lime Plant is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Lime Manufacturing Plants, 326 IAC 14, (40 CFR 63, Subpart AAAAA). Pursuant to this rule, the Permittee must comply with Subpart AAAAA no later than three years from the date this rule is published in the Federal Register.

D.3.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.3.6 Particulate Matter (PM)

The No.1 and No. 2 Kiln baghouses (45), (49), Storage Silo baghouse (47), micro-pulse baghouse (46) and Truck loadout baghouse (48) for PM control shall be in operation and control emissions from the No. 1 Lime Plant operations at all times that the No. 1 Lime Plant is in operation and associated equipment is also in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.3.7 Continuous Compliance Plan [326 IAC 6-1-10.1]

Pursuant to 326 IAC 6-1-10.1(l), the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP).

- (a) Pursuant to 326 IAC 6-1-10.1(l), a CCP shall also be submitted by any source in Lake County for facilities that perform manufacturing operations in a building or structure such that the total uncontrolled PM₁₀ emissions from all such operations amount to ten (10) tons per year or more and that could potentially escape into the atmosphere through roof vents and other openings. The uncontrolled PM₁₀ emissions shall be estimated with AP-42, "Compilation of Air Pollutant Emission Factors, Volume I, (Stationary Point and Area Sources)", 4th Edition, September 1985, (and succeeding amendments) emission factors or other document-able emission factors acceptable to the commissioner.
- (b) Pursuant to 326 IAC 6-1-10.1(p) the Permittee shall include the following information or applicable procedures, or commit to the following actions:
 - (A) Pursuant to 326 IAC 6-1-10.1(p)(1), the plans for the Lime Plant: shall include the following:

Monitor opacity at the kilns and control system vents during normal operation of the kiln with a continuous emission monitor or through self-monitoring of opacity. 40 CFR 60, Appendix A, Method 9* shall be used to determine opacity if the facility is controlled by a positive pressure fabric filter.
 - (B) Pursuant to 326 IAC 6-1-10.1(q), the plans for the particulate matter control equipment shall provide that the following control equipment related information will be maintained at the source's property and will be available for inspection by department personnel:
 - (1) Startup, shutdown, and emergency shutdown procedures.
 - (2) Sources shall notify the department fifteen (15) days in advance of startup of either new control equipment or control equipment to which major modifications have been made.
 - (3) Manufacturer's recommended inspection procedures, preventive and corrective maintenance procedures, and safety devices and procedures, such as sensors, alarm systems, and bypass systems. If manufacturer's recommendations are not available, procedures shall be developed by the source.
 - (4) Contents of the operator's training program and the frequency with which the training is held.
 - (5) A list of spare parts available at the facility.

- (6) A list of control equipment safety devices, for example, high temperature sensors and alarm systems, exhaust gas stream bypass system, or safety interlock system.
 - (7) Monitoring and recording devices and/or instruments to monitor and record control equipment operating parameters specified in subsection (n)(4).
- (C) Pursuant to 326 IAC 6-1-10.1(r)(1), the plans for a facility controlled with a baghouse shall include the recording, inspection, and maintenance procedures to be consistent with the requirements of subsection 326 IAC 6-1-10.1(m), such as the following:
- (1) Operating parameters, such as the following:
 - (i) Pressure drop across the baghouse.
 - (ii) Gas flow rate at baghouse inlet.
 - (iii) Gas temperatures at inlet.

A CCP shall identify the monitors and instrumentation, and their location, accuracy, precision, and calibration frequency. A CCP shall also include a description of any visible emission evaluation program.
 - (2) Baghouse cleaning system. A complete description of the cleaning system, including such information as intensity, duration, frequency, and method of activation.
 - (3) Baghouse inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule must be approved by the department. Inspections shall include the following:
 - (i) Daily inspections shall include the following:
 - (AA) Pressure drop.
 - (BB) Fan amperage.
 - (CC) Cleaning cycle.
 - (DD) Compressed air on pulse jet baghouses for values outside of the operating ranges.
 - (EE) Dust discharge equipment for proper operation.
 - (FF) General check for abnormal audible and visual conditions.
 - (ii) Weekly inspections of the following:
 - (AA) Moving parts on discharge system.
 - (BB) Bypass and isolation damper operation.
 - (CC) Bag tension.
 - (DD) Compressed air lines, oilers, and filters.
 - (EE) Manometer lines.
 - (FF) Temperature indicating equipment.
 - (GG) Bag cleaning sequence.
 - (HH) Drive components on fans.
 - (iii) Monthly inspections of the following:
 - (AA) Bag seating condition.
 - (BB) Moving parts on shaker baghouses.
 - (CC) Fan corrosion and blade wear.
 - (DD) Hoses and clamps.
 - (EE) Bags for leaks and holes.
 - (FF) Bag housing for corrosion.
 - (iv) Quarterly inspections of the following:
 - (AA) Bags.
 - (BB) Ducts for dust build-up.

- (CC) Damper valves for proper setting.
- (DD) Door gaskets.
- (EE) Baffle plate for wear.
- (v) Annual inspection of the following:
 - (AA) Welds and bolts.
 - (BB) Hoppers for wear.
 - (CC) Cleaning parts for wear.

D.3.8 Visible Emissions Notations [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) Visible emission notations of the No.1 and No. 2 Kiln baghouses stacks (45) and (49) exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

D.3.9 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

The Permittee shall record the pressure drop across the No.1 and No. 2 Kiln baghouses (45) and (49) and Storage Silo baghouse (47) at least once per shift when the No.1 and No. 2 Kiln and Storage Silo are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 9.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.3.10 Baghouse Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of all bags controlling the No.1 and No. 2 Kiln stack (45) and (49) and Storage Silo baghouse (47). Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.3.11 Broken or Failed Bag Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C - Emergency Provisions).

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.3.12 Record Keeping Requirements

- (a) To document compliance with D.3.7 the Permittee shall maintain at the source a copy of the Continuous Compliance Plan (CCP) and keep records of the inspections and monitoring in accordance with the Permittee's CCP.
- (b) In order to document compliance with Condition D.3.8, the Permittee shall maintain records of once per shift visible emission notations of the No.1 and No. 2 Kiln baghouses stacks (45) and (49).
- (c) To document compliance with Condition D.3.9, the Permittee shall maintain the records of the pressure drop across the baghouses once per shift during normal operation.
- (d) To document compliance with Condition D.3.10 the Permittee shall maintain records of the results of the inspections required under Condition D.3.10.
- (e) To document compliance with Condition D.3.2, the Permittee shall maintain records on calendar month basis of average sulfur content, heat content of fuel, consumption and SO₂ emission rate in pounds per million Btus.
- (f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.3.13 Reporting Requirements

Pursuant to 326 IAC 7-2-1 (Reporting Requirements), a summary of the information to document compliance with Condition D.3.2 as recorded in D.3.12 (e) above, shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit within thirty (30) days of receipt of request for the same. The report submitted by the Permittee does require the certification by the

“responsible official” as defined by 326 IAC 2-7-1(34).

SECTION D.4 FACILITY OPERATION CONDITIONS- No.2 BOF Shop

Facility Description [326 IAC 2-7-5(15)]:

The increased hot metal production at No.7 Blast Furnace will be processed at the existing No.2 Basic Oxygen Furnaces (BOF) shop to produce additional steel. The steel production will increase by approximately 772,620 tons per year.

No.2 BOF shop list of equipment:

- (a) No.10 Basic Oxygen Furnace controlled by scrubber exhausting to stack 147
- (b) No.20 Basic Oxygen Furnace controlled by scrubber exhausting to stack 148
- (c) Ladle metallurgy facility station controlled by baghouse exhausting to stack 154
- (d) Secondary ventilation system for No.2 BOF shop controlled by scrubber exhausting to stack 149
- (e) Charge Aisle and Hot Metal Station controlled by baghouse exhausting to stack 152
- (f) Truck and ladle hopper controlled by baghouse exhausting to stack 150
- (g) Flux storage batch controlled by baghouse exhausting to stack 151
- (h) Gas Cleaning System
- (i) No.2 BOF Roof Monitor 153
- (j) No.2 BOF Caster Roof Monitor 158

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 Lake County PM emission requirements [326 IAC 6-1-10.1(d)]

Pursuant to 326 IAC 6-1-10.1(d)(19), PM emissions from the BOF operations shall not exceed the following:

- (a) TSP emissions from the No. 2 BOF truck and ladle hopper baghouse (150) shall not exceed 0.0052 grains per dry standard cubic foot and 0.800 pounds per hour.
- (b) TSP emissions from the No. 2 BOF alloy and flux storage baghouse (151) shall not exceed 0.0052 grains per dry standard cubic foot and 0.530 pounds per hour.
- (c) TSP emissions from the No. 2 BOF charging aisle reladling and desulfurization (Hot Metal Station) baghouse (152) shall not exceed 0.011 grains per dry standard cubic foot and 28.30 pounds per hour.
- (d) TSP emissions from the No. 2 BOF No. 10 off-gas scrubber stack (147) shall not exceed 0.058 pounds per ton and 16.00 pounds per hour.
- (e) TSP emissions from the No. 2 BOF No. 20 off-gas scrubber stack (148) shall not exceed 0.058 pounds per ton and 16.00 pounds per hour.
- (f) TSP emissions from the No. 2 BOF secondary ventilation system scrubber (149) shall not exceed 0.015 grains per dry standard cubic foot and 12.00 pounds per hour.
- (g) TSP emissions from the No. 2 BOF ladle metallurgical station baghouse (154) shall not exceed 0.0052 grains per dry standard cubic foot and 2.00 pounds per hour.
- (h) TSP emissions from the No. 2 BOF caster fume collection baghouse (159) shall not exceed 0.0052 grains per dry standard cubic foot and 2.00 pounds per hour.

- (i) TSP emissions from the No. 2 BOF tundish dump baghouse (156) shall not exceed 0.0052 grains per dry standard cubic foot and 2.200 pounds per hour.

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

D.4.2 Opacity [326 IAC 6-1-10.1(e)]

Pursuant to 326 IAC 6-1-10.1(e), the following opacity limits shall be complied with and shall take precedence over those in 326 IAC 5-1-2 with which they conflict. The opacity for the BOF operations shall be limited as follows:

- (a) The opacity for the No. 2 BOF truck and ladle hopper baghouse (150) shall not exceed five percent (5%), three (3) minute average.
- (b) The opacity for the No. 2 BOF alloy and flux storage baghouse (151) shall not exceed five percent (5%), three (3) minute average.
- (c) The opacity for the No. 2 BOF charging aisle reladling and desulfurization (Hot Metal Station) baghouse (152) shall not exceed five percent (5%), three (3) minute average.
- (d) The opacity for the No. 2 BOF No. 10 off-gas scrubber stack (147) shall not exceed twenty percent (20%), six (6) minute average.
- (e) The opacity for the No. 2 BOF No. 20 off-gas scrubber stack (148) shall not exceed twenty percent (20%), six (6) minute average.
- (f) The opacity for the No. 2 BOF roof monitor (153) shall not exceed twenty percent (20%), three (3) minute average.
- (g) The opacity for the No. 2 BOF secondary ventilation system scrubber (149) shall not exceed twenty percent (20%), six (6) minute average.
- (h) The opacity for the No. 2 BOF ladle metallurgical station baghouse (154) shall not exceed five percent (5%), three (3) minute average.
- (i) The opacity for the No. 2 BOF caster fume collection baghouse (159) shall not exceed five percent (5%), three (3) minute average.
- (j) The opacity for the No. 2 BOF tundish dump baghouse (156) shall not exceed five percent (5%), three (3) minute average.

D.4.3 Carbon Monoxide [326 IAC 9-1-2(2)]

Pursuant to 326 IAC 9-1-2(a)(2), No.2 BOF waste gas stream shall be burned in one (1) of the following:

- (A) Boiler.
- (B) Direct-flame afterburner.
- (C) Recuperative incinerator.

In instances where carbon monoxide destruction is not required, carbon monoxide emissions shall be released at such elevation that the maximum ground level concentration from a single source shall not exceed twenty percent (20%) of the maximum one (1) hour Indiana ambient air quality

value for carbon monoxide.

D.4.4 General Provisions Relating to NESHAP [326 IAC 20-1][40 CFR Part 63, Subpart A]

The provisions of 40 CFR 63 Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the No.2 BOF Shop, described in this section, as an 'existing source' except when otherwise specified in 40 CFR 63 Subpart FFFFF.

D.4.5 Emissions Standards for Integrated Iron and Steel Manufacturing [40 CFR Part 63, Subpart FFFFF]

The No.2 BOF Shop is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Integrated Iron and Steel Manufacturing, (40 CFR 63, Subpart FFFFF), effective May 20, 2003. Pursuant to this rule, the Permittee must comply with Subpart FFFFF by May 22, 2006.

D.4.6 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.4.7 Particulate Matter (PM)

- (a) The No. 2 BOF shop truck and ladle hopper baghouse (150) for PM control shall be in operation at all times that any alloy unloading or handling is in process in the related controlled areas.
- (b) The No. 2 BOF shop alloy and flux storage baghouse (151) for PM control shall be in operation at all times that any alloy unloading or handling is in process in the related controlled areas.
- (c) The No. 2 BOF shop charging aisle reladling and desulfurization (Hot Metal Station) baghouse (152) for PM control shall be in operation at all times that the Hot metal station is in operation.
- (d) The No. 2 BOF shop secondary ventilation system scrubber (149) for PM control shall be in operation at all times that either of the furnaces are in operation.
- (e) The No. 2 BOF shop ladle metallurgical station baghouse (154) for PM control shall be in operation at all times that the ladle metallurgy facility station is in operation.
- (f) The No. 2 BOF tundish dump baghouse (156) for PM control shall be in operation at all times that the tundish dump and repair station are handling leaded steel tundishes.

D.4.8 Particulate Matter (PM) and Carbon Monoxide (CO)

No. 2 BOF shop No. 10 BOF off-gas scrubber (147) and No. 20 BOF off-gas scrubber (148) system and the flare equipped with flare igniter for carbon monoxide control shall be in operation at all times that respective furnaces are in operation.

D.4.9 Testing Requirements [326 IAC 3-6] [326 IAC 2-7-6(1), (6)]

Within 60 days of achieving stable production rate after reline project completion, but no later than 180 days after the start of operation after the completion of reline project at the No.7 Blast Furnace the Permittee shall perform Lead (Pb) emissions testing, utilizing methods approved by the Commissioner to show compliance with emission factors in Appendix A to this permit, for stack 147 or 148 for the off-gas scrubber for 10 BOF or 20 BOF and stack 149 for the secondary ventilation system scrubber at the No.2 BOF. Testing shall be conducted in accordance with Section C – Performance Testing.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

D.4.10 Continuous Compliance Plan [326 IAC 6-1-10.1]

Pursuant to 326 IAC 6-1-10.1(l), the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP).

- (a) Pursuant to 326 IAC 6-1-10.1(l), a CCP shall also be submitted by any source in Lake County for facilities that perform manufacturing operations in a building or structure such that the total uncontrolled PM₁₀ emissions from all such operations amount to ten (10) tons per year or more and that could potentially escape into the atmosphere through roof vents and other openings. The uncontrolled PM₁₀ emissions shall be estimated with AP-42, "Compilation of Air Pollutant Emission Factors, Volume I, (Stationary Point and Area Sources)", 4th Edition, September 1985, (and succeeding amendments) emission factors or other documentable emission factors acceptable to the commissioner.
- (b) Pursuant to 326 IAC 6-1-10.1(p) the Permittee shall include the following information or applicable procedures, or commit to the following actions:
 - (A) Pursuant to 326 IAC 6-1-10.1(p)(3)(A), the plans for the Basic oxygen process (BOP, BOF, QBOP) shall include the following:
 - (1) Describe the capture and control devices used to control particulate emissions from each phase of the steel production cycle, including the furnace, hot metal transfer, hot metal desulfurization, and kish removal. The description shall include the locations within the facility of these operations in relation to capture hoods, control devices, roof vents, and other building openings.
 - (2) Describe any fume suppression system, including the process or emission point being controlled, the location within the facility, the inert gas or steam application rate, and the monitoring method. As used in this item, "fume suppression system" means the equipment comprising any system used to inhibit the generation of emissions from steelmaking facilities with an inert gas, flame, or steam blanket applied to the surface of molten iron or steel.
 - (3) Describe the procedure for recording furnace charging and tapping time, amount of throughput, and amount of steel produced.
 - (4) Describe the off-gas system leak detection and repair record keeping practices.
 - (5) Describe the procedures used to minimize dirt and debris accumulation on the facility floor.
 - (6) Describe practices that reduce PM₁₀ and TSP emissions escaping the primary or secondary hood during scrap charging and hot metal charging tapping steel and dumping slag.
 - (7) At least monthly, inspect the operational status of the following elements of the capture system:
 - (i) Pressure sensors.
 - (ii) Dampers.
 - (iii) Damper switches.
 - (iv) The hood and ductwork for the presence of holes.
 - (v) Ductwork for accumulation of dust.
 - (vi) Fans for erosion.Maintain records of the inspections and any repairs.
 - (B) Pursuant to 326 IAC 6-1-10.1(q), the plans for the particulate matter control

equipment shall provide that the following control equipment related information will be maintained at the source's property and will be available for inspection by department personnel:

- (1) Startup, shutdown, and emergency shutdown procedures.
- (2) Sources shall notify the department fifteen (15) days in advance of startup of either new control equipment or control equipment to which major modifications have been made.
- (3) Manufacturer's recommended inspection procedures, preventive and corrective maintenance procedures, and safety devices and procedures, such as sensors, alarm systems, and bypass systems. If manufacturer's recommendations are not available, procedures shall be developed by the source.
- (4) Contents of the operator's training program and the frequency with which the training is held.
- (5) A list of spare parts available at the facility.
- (6) A list of control equipment safety devices, for example, high temperature sensors and alarm systems, exhaust gas stream bypass system, or safety interlock system.
- (7) Monitoring and recording devices and/or instruments to monitor and record control equipment operating parameters specified in subsection (n)(4).

(C) Pursuant to 326 IAC 6-1-10.1(r)(1), the plans for a facility controlled with a baghouse shall include the recording, inspection, and maintenance procedures to be consistent with the requirements of subsection 326 IAC 6-1-10.1(m), such as the following:

- (1) Operating parameters, such as the following:
 - (i) Pressure drop across the baghouse.
 - (ii) Gas flow rate at baghouse inlet.
 - (iii) Gas temperatures at inlet.A CCP shall identify the monitors and instrumentation, and their location, accuracy, precision, and calibration frequency. A CCP shall also include a description of any visible emission evaluation program.
- (2) Baghouse cleaning system. A complete description of the cleaning system, including such information as intensity, duration, frequency, and method of activation.
- (3) Baghouse inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule must be approved by the department. Inspections shall include the following:
 - (i) Daily inspections shall include the following:
 - (AA) Pressure drop.
 - (BB) Fan amperage.
 - (CC) Cleaning cycle.
 - (DD) Compressed air on pulse jet baghouses for values outside of the operating ranges.
 - (EE) Dust discharge equipment for proper operation.
 - (FF) General check for abnormal audible and visual conditions.
 - (ii) Weekly inspections of the following:
 - (AA) Moving parts on discharge system.
 - (BB) Bypass and isolation damper operation.
 - (CC) Bag tension.

- (DD) Compressed air lines, oilers, and filters.
 - (EE) Manometer lines.
 - (FF) Temperature indicating equipment.
 - (GG) Bag cleaning sequence.
 - (HH) Drive components on fans.
 - (iii) Monthly inspections of the following:
 - (AA) Bag seating condition.
 - (BB) Moving parts on shaker baghouses.
 - (CC) Fan corrosion and blade wear.
 - (DD) Hoses and clamps.
 - (EE) Bags for leaks and holes.
 - (FF) Bag housing for corrosion.
 - (iv) Quarterly inspections of the following:
 - (AA) Bags.
 - (BB) Ducts for dust build-up.
 - (CC) Damper valves for proper setting.
 - (DD) Door gaskets.
 - (EE) Baffle plate for wear.
 - (v) Annual inspection of the following:
 - (AA) Welds and bolts.
 - (BB) Hoppers for wear.
 - (CC) Cleaning parts for wear.
- (D) Pursuant to 326 IAC 6-1-10.1(r)(3), the plans for a facility controlled by a scrubber shall include the recording, inspection, and maintenance procedures to be consistent with the objectives of subsection 326 IAC 6-1-10.1(m), such as the following:
 - (1) Operating parameters, such as the following:
 - (i) Gas flow rate.
 - (ii) Inlet and outlet temperatures of gas to and from scrubber.
 - (iii) Liquid flow rate to scrubber.
 - (iv) Pressure drop across scrubber.
 - (v) pH of liquid to scrubber.
 - (vi) Fan and pump currents.A CCP shall specify the location, accuracy, precision, and calibration frequency of monitors and instrumentation.
 - (2) Scrubber inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule shall be approved by the department. Inspections shall include the following:
 - (i) Daily inspection of the following:
 - (AA) Scrubbing liquid flow rates to scrubber.
 - (BB) Pressure drop across scrubber.
 - (CC) Fan and pump amperages for values outside the operating range.Corrective actions taken shall be recorded.
 - (ii) Monthly inspection of the following:
 - (AA) Seals for abrasion.
 - (BB) Corrosion and leaks.
 - (CC) Fans for abrasion, corrosion, and solids build-up.
 - (DD) Pipes for abrasion, corrosion, and plugging.
 - (EE) Throat wear in the venturi scrubber.
 - (FF) Sensors, alarm systems, and bypass devices for proper

operation.
(GG) Entrainment separator for blockage.
(HH) Spray nozzles for plugging or excessive wear.

D.4.11 Visible Emissions Notations [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) Visible emission notations of the No. 2 BOF shop charging aisle reladling and desulfurization (Hot Metal Station) baghouse (152), No. 2 BOF shop No. 10 BOF and No. 20 BOF off-gas scrubber stacks (147) and (148), and No. 2 BOF shop secondary ventilation system scrubber (149) exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

D.4.12 Scrubber Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) The Permittee shall record the total static pressure drop and flow rate of the scrubber used in conjunction with the No.2 BOF shop, 10 BOF (147), at least once per shift when the 10 BOF is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 10 and 15 kPa or a range established during the latest stack test and the flow rate of the scrubber is below the minimum of 80 liter per second, or a minimum rate established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure drop or flow rate reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a violation of this permit.
- (b) The Permittee shall record the total static pressure drop and flow rate of the scrubber used in conjunction with the No.2 BOF shop, 20 BOF (148), at least once per shift when the 20 BOF is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 10 and 15 kPa or a range established during the latest stack test and the flow rate of the scrubber is below the minimum of 80 liter per second, or a minimum rate established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure drop or flow rate reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a violation of this permit.

- (c) The Permittee shall record the total static pressure drop and flow rate of the scrubber used in conjunction with the No.2 BOF shop secondary ventilation system (149), at least once per shift during the hot metal charge. When for any one reading, the pressure drop across the baghouse is outside the normal range of 25 and 45 inches of water or a range established during the latest stack test and the flow rate of the scrubber is below the minimum of 1250 gallons per minute, or a minimum rate established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure drop or flow rate reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.4.13 Failure Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that a scrubber system failure has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C- Emergency Provisions).

D.4.14 Scrubber Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of the No. 2 BOF shop No. 10 BOF and No. 20 BOF off-gas scrubber (147) and (148), and No. 2 BOF shop secondary ventilation system scrubber (149). Inspections required by this condition shall not be performed in consecutive months.

D.4.15 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the No. 2 BOF shop charging aisle reladling and desulfurization (Hot Metal Station) (152) at least once per shift when the Hot metal station in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0-10.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.4.16 Baghouse Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of all bags controlling the No. 2 BOF shop charging aisle reladling and desulfurization (Hot Metal Station) (152) process operations. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.4.17 Broken or Failed Bag Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (b) For single compartment baghouses, if failure is indicated by a significant drop in the bathhouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C - Emergency Provisions).

D.4.18 No.2 BOF Flare Monitoring [326 IAC 9-1-2][326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

The Permittee shall install and maintain a monitor to detect the presence of a flame at the flare at the No. 2 BOF shop, 10 BOF (147), and 20 BOF (148). The presence of a flame at the flare tip shall be monitored at all times when the vapors are being vented to the flare. The monitor shall be equipped with an automatic alarm, which activates when the presence of a flame is not detected during periods when vapors are being vented to the flare. Whenever the alarm is activated, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.4.19 Record Keeping Requirements

- (a) To document compliance with D.4.10 the Permittee shall maintain at the source a copy of the Continuous Compliance Plan (CCP) and keep records of the inspections and monitoring in accordance with the Permittee's CCP.
- (b) In order to document compliance with Condition D.4.11, the Permittee shall maintain records of once per shift visible emission notations of the No. 2 BOF shop charging aisle reladling and desulfurization (Hot Metal Station) baghouse (152), No. 10 BOF off-gas scrubber stack (147), No. 20 BOF off-gas scrubber stack (148), and secondary ventilation system scrubber (149) stack exhaust(s).
- (c) In order to document compliance with condition D.4.12, the Permittee shall maintain the records, once per shift of the following operational parameters during normal operation:

- (A) Pressure drop across the venturi throat of the scrubbers; and
 - (B) Liquid flow rate of supply water to the scrubbers.
-
- (d) In order to document compliance with Condition D.4.14, the Permittee shall maintain records of the results of the inspections required under Condition D.4.14.
 - (e) In order to document compliance with Condition D.4.15, the Permittee shall maintain the records once per shift of the total static pressure drop across the baghouse during normal operation.
 - (f) In order to document compliance with Condition D.4.16, the Permittee shall maintain records of the results of the inspections required under Condition D.4.16.
 - (g) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.5 FACILITY OPERATION CONDITIONS-No.4 BOF Shop

Facility Description [326 IAC 2-7-5(15)]:

The increased hot metal production at No.7 Blast Furnace will be processed at the existing No.4 Basic Oxygen Furnaces (BOF) shop to produce additional steel. The steel production will increase by approximately 772,620 tons per year.

No.4 BOF shop list of equipment:

- (a) No.4 BOF shop off gas controlled by scrubber exhausting to stack 38
- (b) Secondary ventilation system for No.4 BOF shop controlled by baghouse exhausting to stack 37
- (c) Hot Metal Station (North) controlled by baghouse exhausting to stack 26
- (d) Hot Metal Station (South) controlled by baghouse exhausting to stack 27
- (e) RHOB condensers stack exhausting to stack 32
- (f) RHOB material handling stack controlled by baghouse exhausting to stack 33
- (g) Gas Cleaning System 4 BOF
- (h) Gas Cleaning System 4 BOF RHOB
- (i) Furnace additive bin loading exhausting to stack 28
- (j) Torch cut exhausting to stack 31
- (k) Furnace additive hopper house exhausting to stack 35
- (l) No.4 BOF Roof Monitor 29

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 Lake County PM10 emission requirements [326 IAC 6-1-10.1(d)]

Pursuant to 326 IAC 6-1-10.1(d)(19) PM10 emissions from the BOF operations shall not exceed the following:

- (a) TSP emissions from the No. 4 BOF shop reladling and desulfurization (Hot Metal Station) baghouse stack (26 and 27) shall not exceed 0.0052 grains per dry standard cubic foot and 8.26 pounds per hour
- (b) TSP emissions from the No. 4 BOF shop off-gas scrubber stack (38) shall not exceed 0.187 pounds per ton and 100.00 pounds per hour.
- (c) TSP emissions from the No. 4 BOF shop secondary ventilation system baghouse (37) shall not exceed 0.006 grains per dry standard cubic foot and 22.30 pounds per hour.
- (d) TSP emissions from the No. 4 BOF shop vacuum degassing baghouse (33) shall not exceed 0.01 grains per dry standard cubic foot and 4.280 pounds per hour.

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

D.5.2 Opacity [326 IAC 6-1-10.1(e)]

Pursuant to 326 IAC 6-1-10.1(e), the following opacity limits shall be complied with and shall take precedence over those in 326 IAC 5-1-2 with which they conflict. The visible emissions from the

BOF operations shall be limited as follows:

- (a) Visible emissions from the No. 4 BOF shop, reladling and desulfurization (Hot Metal Station) baghouse (26 and 27) shall not exceed five percent (5%), three (3) minute average.
- (b) Visible emissions from the No. 4 BOF shop roof monitor (29) shall not exceed twenty percent (20%), three (3) minute average.
- (c) Visible emissions from the No. 4 BOF shop off-gas scrubber (38) shall not exceed twenty percent (20%), six (6) minute average.
- (d) Visible emissions from the No. 4 BOF shop secondary ventilation system baghouse (37) shall not exceed five percent (5%), three (3) minute average.
- (e) Visible emissions from the No. 4 BOF shop vacuum degassing material handling baghouse (33) shall not exceed five percent (5%), three (3) minute average.

D.5.3 General Provisions Relating to NESHAP [326 IAC 20-1][40 CFR Part 63, Subpart A]

The provisions of 40 CFR 63 Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the No.4 BOF Shop, described in this section, as an 'existing source' except when otherwise specified in 40 CFR 63 Subpart FFFFF.

D.5.4 Emissions Standards for Integrated Iron and Steel Manufacturing [40 CFR Part 63, Subpart FFFFF]

The No.4 BOF Shop is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Integrated Iron and Steel Manufacturing, 326 IAC 14, (40 CFR 63, Subpart FFFFF, and 326 IAC 20-1-1), effective May 20, 2003. Pursuant to this rule, the Permittee must comply with Subpart FFFFF by May 22, 2006.

D.5.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.5.6 Particulate Matter (PM)

- (a) The hot metal transfer, desulfurization, operation baghouses (26 and 27) for PM control shall be in operation at all times that any of the respective processes are in operation.
- (b) The BOF and process off-gas scrubber system (38) and secondary ventilation baghouse (37) shall be in operation at all times that either of the furnaces are in operation.
- (c) Raw material handling for RHOB facility baghouse (33) shall be in operation at all times that any of the related processes are in operation.

D.5.7 Testing Requirements [326 IAC 3-6] [326 IAC 2-7-6(1), (6)]

Within 60 days of achieving stable production rate after reline project completion, but no later than 180 days after the start of operation after the completion of reline project at the No.7 Blast Furnace the Permittee shall perform Lead (Pb) emissions testing, utilizing methods approved by the Commissioner to show compliance with emission factors in Appendix A to this permit, for stack 38 for the off-gas scrubber for No.4 BOF and stack 37 for the secondary ventilation system baghouse at the No.4 BOF. Testing shall be conducted in accordance with Section C –Performance Testing.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

D.5.8 Continuous Compliance Plan [326 IAC 6-1-10.1]

Pursuant to 326 IAC 6-1-10.1(l), the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP).

- (a) Pursuant to 326 IAC 6-1-10.1(l), a CCP shall also be submitted by any source in Lake County for facilities that perform manufacturing operations in a building or structure such that the total uncontrolled PM₁₀ emissions from all such operations amount to ten (10) tons per year or more and that could potentially escape into the atmosphere through roof vents and other openings. The uncontrolled PM₁₀ emissions shall be estimated with AP-42, "Compilation of Air Pollutant Emission Factors, Volume I, (Stationary Point and Area Sources)", 4th Edition, September 1985, (and succeeding amendments) emission factors or other document-able emission factors acceptable to the commissioner.
- (b) Pursuant to 326 IAC 6-1-10.1(p) the Permittee shall include the following information or applicable procedures, or commit to the following actions:
 - (A) Pursuant to 326 IAC 6-1-10.1(p)(3)(A), the plans for the Basic oxygen process (BOP, BOF, QBOP) shall include the following:
 - (1) Describe the capture and control devices used to control particulate emissions from each phase of the steel production cycle, including the furnace, hot metal transfer, hot metal desulfurization, and kish removal. The description shall include the locations within the facility of these operations in relation to capture hoods, control devices, roof vents, and other building openings.
 - (2) Describe any fume suppression system, including the process or emission point being controlled, the location within the facility, the inert gas or steam application rate, and the monitoring method. As used in this item, "fume suppression system" means the equipment comprising any system used to inhibit the generation of emissions from steelmaking facilities with an inert gas, flame, or steam blanket applied to the surface of molten iron or steel.
 - (3) Describe the procedure for recording furnace charging and tapping time, amount of throughput, and amount of steel produced.
 - (4) Describe the off-gas system leak detection and repair record keeping practices.
 - (5) Describe the procedures used to minimize dirt and debris accumulation on the facility floor.
 - (6) Describe practices that reduce PM₁₀ and TSP emissions escaping the primary or secondary hood during scrap charging and hot metal charging tapping steel and dumping slag.
 - (7) At least monthly, inspect the operational status of the following elements of the capture system:
 - (i) Pressure sensors.
 - (ii) Dampers.
 - (iii) Damper switches.
 - (iv) The hood and ductwork for the presence of holes.
 - (v) Ductwork for accumulation of dust.
 - (vi) Fans for erosion.Maintain records of the inspections and any repairs.

- (B) Pursuant to 326 IAC 6-1-10.1(q), the plans for the particulate matter control equipment shall provide that the following control equipment related information will be maintained at the source's property and will be available for inspection by department personnel:
- (1) Startup, shutdown, and emergency shutdown procedures.
 - (2) Sources shall notify the department fifteen (15) days in advance of startup of either new control equipment or control equipment to which major modifications have been made.
 - (3) Manufacturer's recommended inspection procedures, preventive and corrective maintenance procedures, and safety devices and procedures, such as sensors, alarm systems, and bypass systems. If manufacturer's recommendations are not available, procedures shall be developed by the source.
 - (4) Contents of the operator's training program and the frequency with which the training is held.
 - (5) A list of spare parts available at the facility.
 - (6) A list of control equipment safety devices, for example, high temperature sensors and alarm systems, exhaust gas stream bypass system, or safety interlock system.
 - (7) Monitoring and recording devices and/or instruments to monitor and record control equipment operating parameters specified in subsection (n)(4).
- (C) Pursuant to 326 IAC 6-1-10.1(r)(1), the plans for a facility controlled with a baghouse shall include the recording, inspection, and maintenance procedures to be consistent with the requirements of subsection 326 IAC 6-1-10.1(m), such as the following:
- (1) Operating parameters, such as the following:
 - (i) Pressure drop across the baghouse.
 - (ii) Gas flow rate at baghouse inlet.
 - (iii) Gas temperatures at inlet.A CCP shall identify the monitors and instrumentation, and their location, accuracy, precision, and calibration frequency. A CCP shall also include a description of any visible emission evaluation program.
 - (2) Baghouse cleaning system. A complete description of the cleaning system, including such information as intensity, duration, frequency, and method of activation.
 - (3) Baghouse inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule must be approved by the department. Inspections shall include the following:
 - (i) Daily inspections shall include the following:
 - (AA) Pressure drop.
 - (BB) Fan amperage.
 - (CC) Cleaning cycle.
 - (DD) Compressed air on pulse jet baghouses for values outside of the operating ranges.
 - (EE) Dust discharge equipment for proper operation.
 - (FF) General check for abnormal audible and visual conditions.
 - (ii) Weekly inspections of the following:
 - (AA) Moving parts on discharge system.

- (BB) Bypass and isolation damper operation.
 - (CC) Bag tension.
 - (DD) Compressed air lines, oilers, and filters.
 - (EE) Manometer lines.
 - (FF) Temperature indicating equipment.
 - (GG) Bag cleaning sequence.
 - (HH) Drive components on fans.
 - (iii) Monthly inspections of the following:
 - (AA) Bag seating condition.
 - (BB) Moving parts on shaker baghouses.
 - (CC) Fan corrosion and blade wear.
 - (DD) Hoses and clamps.
 - (EE) Bags for leaks and holes.
 - (FF) Bag housing for corrosion.
 - (iv) Quarterly inspections of the following:
 - (AA) Bags.
 - (BB) Ducts for dust build-up.
 - (CC) Damper valves for proper setting.
 - (DD) Door gaskets.
 - (EE) Baffle plate for wear.
 - (v) Annual inspection of the following:
 - (AA) Welds and bolts.
 - (BB) Hoppers for wear.
 - (CC) Cleaning parts for wear.
- (D) Pursuant to 326 IAC 6-1-10.1(r)(3), the plans for a facility controlled by a scrubber shall include the recording, inspection, and maintenance procedures to be consistent with the objectives of subsection 326 IAC 6-1-10.1(m), such as the following:
 - (1) Operating parameters, such as the following:
 - (i) Gas flow rate.
 - (ii) Inlet and outlet temperatures of gas to and from scrubber.
 - (iii) Liquid flow rate to scrubber.
 - (iv) Pressure drop across scrubber.
 - (v) pH of liquid to scrubber.
 - (vi) Fan and pump currents.A CCP shall specify the location, accuracy, precision, and calibration frequency of monitors and instrumentation.
 - (2) Scrubber inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule shall be approved by the department. Inspections shall include the following:
 - (i) Daily inspection of the following:
 - (AA) Scrubbing liquid flow rates to scrubber.
 - (BB) Pressure drop across scrubber.
 - (CC) Fan and pump amperages for values outside the operating range.Corrective actions taken shall be recorded.
 - (ii) Monthly inspection of the following:
 - (AA) Seals for abrasion.
 - (BB) Corrosion and leaks.

- (CC) Fans for abrasion, corrosion, and solids build-up.
- (DD) Pipes for abrasion, corrosion, and plugging.
- (EE) Throat wear in the venturi scrubber.
- (FF) Sensors, alarm systems, and bypass devices for proper operation.
- (GG) Entrainment separator for blockage.
- (HH) Spray nozzles for plugging or excessive wear.

D.5.9 Visible Emissions Notations [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) Visible emission notations of the No. 4 BOF shop off-gas scrubber (38), No. 4 BOF shop secondary ventilation system baghouse (37), No. 4 BOF shop reladling and desulfurization (Hot Metal Station) baghouse north (26) and No. 4 BOF reladling and desulfurization (Hot Metal Station) baghouse south (27) shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

D.5.10 Scrubber Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

The Permittee shall record the total static pressure drop and flow rate of the scrubber used in conjunction with the No. 4 BOF shop off-gas scrubber (38), at least once per shift when the 4 BOF shop is in operation. When for any one reading, the pressure drop across the scrubber is outside the normal range of 25 and 40 inches of water or a range established during the latest stack test and the flow rate of the scrubber is below the minimum of 600 gallons per minute, or a minimum rate established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure drop or flow rate reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.5.11 Failure Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that a scrubber system failure has been observed:

Failed units and the associated process will be shut down immediately until the failed units have

been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C - Emergency Provisions).

D.5.12 Scrubber Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of the No. 4 BOF shop off-gas scrubber (38). Inspections required by this condition shall not be performed in consecutive months.

D.5.13 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the No. 4 BOF shop reladling and desulfurization (Hot Metal Station) baghouse north (26) at least once per shift when the Hot metal station is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 4.5-10.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.
- (b) The Permittee shall record the pressure drop across the baghouse and the fan amperage of the baghouse used in conjunction with the No. 4 BOF reladling and desulfurization (Hot Metal Station) baghouse south (27) at least once per shift when the Hot metal station is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 4.0-12.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.
- (c) The Permittee shall record the pressure drop across the baghouse used in conjunction with No. 4 BOF shop secondary ventilation system baghouse (37) at least once per shift when the Hot metal station is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 4.5-10.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be verified for accuracy at least once every six (6) months.

D.5.14 Baghouse Inspections [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

An inspection shall be performed each calendar quarter of all bags controlling the No. 4 BOF shop reladling and desulfurization (Hot Metal Stations) baghouses (26 and 27) and No. 4 BOF shop secondary ventilation system baghouse (37) process operations. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

D.5.15 Broken or Failed Bag Detection [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired, replaced, blanked or isolated. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C - Emergency Provisions).

D.5.16 BOF Scrap Quality Control

Based on Agreed Order, Cause No. A-4218, the Permittee shall update and keep on file a revised work instruction for incoming scrap metal quality control. The quality control work instruction shall provide reasonable assurance that portions of the scrap metal charged in the BOF are free from non-metallic contamination, residual petroleum products, and fluids that could cause opacity excursions.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.5.17 Record Keeping Requirements

- (a) To document compliance with D.5.6 the Permittee shall maintain at the source a copy of the Continuous Compliance Plan (CCP) and keep records of the inspections and monitoring in accordance with the Permittee's CCP.
- (b) In order to document compliance with Condition D.5.9, the Permittee shall maintain records of once per shift visible emission notations of the No. 4 BOF shop off-gas scrubber (38) and No. 4 BOF shop secondary ventilation system baghouse (37) stack exhausts.
- (c) To document compliance with Condition D.5.10, the Permittee shall maintain the records, once per shift records of the following operational parameters during normal operation:
 - (A) Pressure drop across the venturi throat of the scrubber; and
 - (B) Liquid flow rate of supply water to the scrubber.

- (d) In order to document compliance with Condition D.5.12, the Permittee shall maintain records of the results of the inspections required under Condition D.5.12.
- (e) In order to document compliance with condition D.5.13, the Permittee shall maintain the records once per shift of the total static pressure drop across the baghouses during normal operation.
- (f) In order to document compliance with Condition D.5.14, the Permittee shall maintain records of the results of the inspections required under Condition D.5.14.
- (g) In order to document compliance with Condition D.5.16, the Permittee shall maintain and update the quality control work instruction and shall make the document available upon request by IDEM.
- (h) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.6 FACILITY OPERATION CONDITIONS-Shutdown units

Facility Description [326 IAC 2-7-5(15)]:

- (a) Shutdown the 2A Blooming Mill and 21 inch Bar Mill.
- (b) No. 4 AC Station – The emissions unit consisting of five boilers identified as 401 through 405 that were shutdown in April 1999.
- (c) Slag Granulation/Pelletization - Installation reduced emissions by cooling and processing slag currently handled in the slag pits. The curtailment of slag pits occurred in 2002.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.6.1 Operation restriction – shutdown of 2 A Blooming Mill and 21 inch Bar Mill [326 IAC 2-3] [326 IAC 2-2]

- (a) Pursuant to 326 IAC 2-3 and 326 IAC 2-2, the 2A Blooming Mill and 21 inch Bar Mill shall be shutdown permanently before the restart of the No.7 Blast Furnace operation after the completion of the reline project in 2003. In addition within 180 days of restart of the No.7 Blast Furnace operation after the reline project in 2003, these emissions units shall be physically disconnected and permanently removed from service.
- (b) On and after the date of issuance of this permit, the Permittee shall request the IDEM, OAQ to remove the 2A Blooming Mill and 21 inch Bar Mill and all the associated equipment permanently from the emissions inventory maintained by the State.
- (c) This condition supercedes all conditions in previous permits that allow the operation of the 2A Blooming Mill and 21 inch Bar Mill and its associated equipment.

D.6.2 Operation restriction – shutdown of No.4 AC station [326 IAC 2-2][326 IAC 2-3]

- (a) Pursuant to 326 IAC 2-2 and 326 IAC 2-3, within 30 days after the date of issuance of this permit, five (5) coal fired boilers identified as 401, 402, 403, 404 and 405 that form the part of 4 AC station and all the associated equipment for the operation of these boilers shall be shutdown permanently. In addition within 180 days of issuance of this permit or before the restart of the No.7 Blast Furnace operation after the reline project in 2003, these boilers shall be physically disconnected and permanently removed from service.
- (b) On and after the date of issuance of this permit, the Permittee shall request the IDEM, OAQ to remove the 4 AC station and all the associated equipment permanently from the emissions inventory maintained by the State.
- (c) This condition supercedes all conditions in previous permits that allow the operation of the 4 AC station and its associated equipment.

D.6.3 Operation restriction – Curtailment of slag pits operation [326 IAC 2-2][326 IAC 2-3]

In order to make requirements of 326 IAC 2-2 PSD not applicable, on and after the date of issuance of this permit the operation of the slag pits at No.7 Blast Furnace shall be curtailed to 227,472 tons of slag processed at these facilities per 12 consecutive month period.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.6.4 Record Keeping Requirements

To document compliance with D.6.3, the Permittee shall keep records of slag produced at the No.7 Blast Furnace and processed at the slag pits in terms of tons of slag per month. These records shall be kept for at least a period of 60 months.

D.6.5 Reporting Requirements

A semi-annual summary of the information to document compliance with Condition D.6.3 shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the six (6) month period being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Phone: 317-233-5674
Fax: 317-233-5967**

**PART 70 SIGNIFICANT SOURCE MODIFICATION
EMERGENCY OCCURRENCE REPORT**

Source Name: Ispat Inland, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Mailing Address: 3210 Watling Street MC 8-130, East Chicago, Indiana 46312
Permit No.: 089-16966-00316

This form consists of 2 pages

Page 1 of 2

? This is an emergency as defined in 326 IAC 2-7-1(12)
The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and
The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:

Control Equipment:

Permit Condition or Operation Limitation in Permit:

Description of the Emergency:

Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:

Date/Time Emergency was corrected:

Was the facility being properly operated at the time of the emergency? Y N
Describe:

Type of Pollutants Emitted: TSP, PM-10, SO₂, VOC, NO_x, CO, Pb, other:

Estimated amount of pollutant(s) emitted during emergency:

Describe the steps taken to mitigate the problem:

Describe the corrective actions/response steps taken:

Describe the measures taken to minimize emissions:

If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

A certification is not required for this report

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

PART 70 SIGNIFICANT SOURCE MODIFICATION CERTIFICATION

Source Name: Ispat Inland, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Mailing Address: 3210 Watling Street MC 8-130, East Chicago, Indiana 46312
Permit No.: 089-16966-00316

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.

Please check what document is being certified:

- ? Test Result (specify) _____
- ? Report (specify) _____
- ? Notification (specify) _____
- ? Affidavit (specify) _____
- ? Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature: _____

Printed Name: _____

Title/Position: _____

Date: _____

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

**PART 70 SIGNIFICANT SOURCE MODIFICATION
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Ispat Inland, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Mailing Address: 3210 Watling Street MC 8-130, East Chicago, Indiana 46312
Permit No.: 089-16966-00316

Months: _____ to _____ Year: _____

Page 1 of 2

<p>This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".</p>	
<p>? NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.</p>	
<p>? THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD</p>	
<p>Permit Requirement (specify permit condition #)</p>	
<p>Date of Deviation:</p>	<p>Duration of Deviation:</p>
<p>Number of Deviations:</p>	
<p>Probable Cause of Deviation:</p>	
<p>Response Steps Taken:</p>	
<p>Permit Requirement (specify permit condition #)</p>	
<p>Date of Deviation:</p>	<p>Duration of Deviation:</p>
<p>Number of Deviations:</p>	
<p>Probable Cause of Deviation:</p>	

Response Steps Taken:

Page 2 of 2

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

PART 70 QUARTERLY REPORT

Source Name: Ispat Inland, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Mailing Address: 3210 Watling Street MC 8-130, East Chicago, Indiana 46312
Permit No.: 089-16966-00316
Facility: Slag pits at No.7 Blast Furnace
Parameter: Throughput of slag
Limit: 227,472 tons of slag processed at these facilities per 12 consecutive month period.

QUARTER:_____ YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

? No deviation occurred in this quarter.

? Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by:
Title / Position:
Signature:
Date:
Phone:

Attach a signed certification to complete this report.

APPENDIX A – EMISSION FACTORS

No.7 Blast Furnace and No.5 Boiler House emission points:

PM

Stack ID, associated equipment	Type of fuel combusted at the equipment	PM emissions factors (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	0.68
	Natural gas	1.9
	Combination gas (a mix of natural gas and blast furnace gas)	$0.68 \times \text{Usage of BFG (MMSCF)} + 1.9 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	0.68
	Natural Gas	1.9
	Combination gas (a mix of natural gas and blast furnace gas)	$0.68 \times \text{Usage of BFG (MMSCF)} + 1.9 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)

Stack ID, associated equipment	PM emissions factors	Units
167, Cast house No.7 Blast Furnace east baghouse	22.0	pound/hour
166, Cast house No.7 Blast Furnace west baghouse	11.22	pound/hour
169, Coke screening and transfer station baghouse	0.0002	pound/ton of coke
172, Stockhouse coke handling baghouse	0.0009	pound/ton of coke
168, Stockhouse pellet handling baghouse	0.0005	pound/ton of pellet
Slag pit operation at No.7 Blast Furnace	0.47	pound/ton of slag processed
Slag Granulator/Pelletizer	0.087	pound/ton of slag processed
171, Casthouse fugitive emissions	0.03	pound/ton of hot metal

PM₁₀ (Filterable and Condensable)

Stack ID, associated equipment	Type of fuel combusted at the equipment	PM ₁₀ (Filterable and Condensable)emissions factors (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	4.51
	Natural gas	7.6
	Combination gas (a mix of natural gas and blast furnace gas)	$4.51 \times \text{Usage of BFG (MMSCF)} + 7.6 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	4.51
	Natural Gas	7.6
	Combination gas (a mix of natural gas and blast furnace gas)	$4.51 \times \text{Usage of BFG (MMSCF)} + 7.6 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)

Stack ID, associated equipment	PM ₁₀ emissions factors	Units
167, Cast house No.7 Blast Furnace east baghouse	30.1	pound/hour
166, Cast house No.7 Blast Furnace west baghouse	19.3	pound/hour
169, Coke screening and transfer station baghouse	0.0001	pound/ton of coke
172, Stockhouse coke handling baghouse	0.0008	pound/ton of coke
168, Stockhouse pellet handling baghouse	0.0005	pound/ton of pellet
Slag pit operation at No.7 Blast Furnace	0.32	pound/ton of slag processed
Slag Granulator/Pelletizer	0.087	pound/ton of slag processed
171, Casthouse fugitive emissions	0.021	pound/ton of hot metal

SO₂

Stack ID, associated equipment	Type of fuel combusted at the equipment	SO ₂ emissions factors (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	14.7
	Natural gas	0.6
	Combination gas (a mix of natural gas and blast furnace gas)	$14.7 \times \text{Usage of BFG (MMSCF)} + 0.6 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	14.7
	Natural Gas	0.6

	Combination gas (a mix of natural gas and blast furnace gas)	14.7 X Usage of BFG (MMSCF)+ 0.6 X Usage of NG (MMSCF) Total usage of BFG and NG (MMSCF)
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Stack ID, associated equipment	SO ₂ emissions factors	Units
167, Cast house No.7 Blast Furnace east baghouse	0.1774	pound/ton of hot metal
166, Cast house No.7 Blast Furnace west baghouse	0.1774	pound/ton of hot metal
Slag pit operation at No.7 Blast Furnace	0.578	pound/ton of slag processed
Slag Granulator/Pelletizer	0.1	pound/ton of slag processed
171, Casthouse fugitive emissions	0.01	pound/ton of hot metal

CO

Stack ID, associated equipment	CO emissions factors	Units
Slag pit operation at No.7 Blast Furnace	0.086	pound/ton of slag processed
Slag Granulator/Pelletizer	0.066	pound/ton of slag processed
Gas Cleaning System	0.131	pound/ton of hot metal
171, Casthouse fugitive emissions	0.012	pound/ton of hot metal

NO_x

Stack ID, associated equipment	Type of fuel combusted at the equipment	NO _x emissions factors (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	23
	Natural gas	104
	Combination gas (a mix of natural gas and blast furnace gas)	23 X Usage of BFG (MMSCF)+ 104 X Usage of NG (MMSCF) Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	23
	Natural Gas	104
	Combination gas (a mix of natural gas and blast furnace gas)	23 X Usage of BFG (MMSCF)+ 104 X Usage of NG (MMSCF) Total usage of BFG and NG (MMSCF)

Stack ID, associated equipment	NO _x emissions factors	Units
167, Cast house No.7 Blast Furnace east baghouse	0.0248	pound/ton of hot metal
166, Cast house No.7 Blast Furnace west baghouse	0.0248	pound/ton of hot metal
Slag pit operation at No.7 Blast Furnace	0.0248	pound/ton of slag processed
Slag Granulator/Pelletizer	0.01	pound/ton of slag processed
171, Casthouse fugitive emissions	0.0012	pound/ton of hot metal

VOC

Stack ID, associated equipment	Type of fuel combusted at the equipment	VOC emissions factors (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	0
	Natural gas	5.5
	Combination gas (a mix of natural gas and blast furnace gas)	0 X Usage of BFG (MMSCF)+ 5.5 X Usage of NG (MMSCF) Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	0
	Natural Gas	5.5
	Combination gas (a mix of natural gas and blast furnace gas)	0 X Usage of BFG (MMSCF)+ 5.5 X Usage of NG (MMSCF) Total usage of BFG and NG (MMSCF)

Stack ID, associated equipment	VOC emissions factors	Units
167, Cast house No.7 Blast Furnace east baghouse	0.00922	pound/ton of hot metal
166, Cast house No.7 Blast Furnace west baghouse	0.00922	pound/ton of hot metal
Slag pit operation at No.7 Blast Furnace	0.00234	pound/ton of slag processed
Slag Granulator/Pelletizer	0.001	pound/ton of slag processed
171, Casthouse fugitive emissions	0.0009	pound/ton of hot metal

Pb

Stack ID, associated equipment	Pb emissions factors	Units
167, Cast house No.7 Blast Furnace east baghouse	0.000126	pound/ton of hot metal
166, Cast house No.7 Blast Furnace west baghouse	0.000126	pound/ton of hot metal
Slag pit operation at No.7 Blast Furnace	0.0000036	pound/ton of slag processed
Slag Granulator/Pelletizer	0.000001	pound/ton of slag processed
171, Casthouse fugitive emissions	0.0000216	pound/ton of hot metal

Pulverized Coal Injection Plant emission points:

PM

Stack ID, associated equipment	PM emissions factors	Units
185, Coal transfer baghouse A	0.00056	pound/ton of coal
186, Coal storage baghouse C	0.00078	pound/ton of coal
187, Coal pulverizer baghouse D	0.99	pound/hour
188, Coal pulverizer baghouse E	0.99	pound/hour
189, Coal storage baghouse F	0.000818	pound/ton of coal
190, Coal storage baghouse G	0.000818	pound/ton of coal
192, Coal unloading system	0.003	pound/ton of coal

PM₁₀ (Filterable and Condensable)

Stack ID, associated equipment	PM ₁₀ emissions factors	Units
185, Coal transfer baghouse A	0.00056	pound/ton of coal
186, Coal storage baghouse C	0.00078	pound/ton of coal
187, Coal pulverizer baghouse D	0.99	pound/hour
188, Coal pulverizer baghouse E	0.99	pound/hour
189, Coal storage baghouse F	0.000818	pound/ton of coal
190, Coal storage baghouse G	0.000818	pound/ton of coal
192, Coal unloading system	0.0015	pound/ton of coal

No.1 Lime Plant emission points:

PM

Stack ID, associated equipment	PM emissions factors	Units
47, Lime plant storage silo baghouse	5.53	pound/hour
45 and 49, No.1 and No.2 Lime Kiln baghouses (combined)	7.149	pound/hour
46, Lime plant fugitive control micro-pulse baghouse	0.007	pound/ton of lime
48, Lime plant truck loadout baghouse	0.01	pound/ton of lime

PM₁₀ (Filterable and Condensable)

Stack ID, associated equipment	PM ₁₀ emissions factors	Units
47, Lime plant storage silo baghouse	5.53	pound/hour
45 and 49, No.1 and No.2 Lime Kiln baghouses (combined)	8.0	pound/hour
46, Lime plant fugitive control micro-pulse baghouse	0.007	pound/ton of lime
48, Lime plant truck loadout baghouse	0.0048	pound/ton of lime

CO

Stack ID, associated equipment	CO emissions factors	Units
45 and 49, No.1 and No.2 Lime Kiln baghouses	2.0	pound/ton of lime

Pb

Stack ID, associated equipment	Pb emissions factors	Units
47, Lime plant storage silo baghouse	0.00000595	pound/ton of lime
45 and 49, No.1 and No.2 Lime Kiln baghouses	0.000060568	pound/ton of lime from each kiln
48, Lime plant truck loadout baghouse	0.00000085	pound/ton of lime

No.2 BOF shop emission points:

PM

Stack ID, associated equipment	Type of fuel combusted at the equipment	PM emissions factors (pound/MMSCF of fuel)
147, No.10 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	1.9
148, No.20 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	1.9

Stack ID, associated equipment	PM emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	0.057	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	0.057	pound/ton of steel
154, Ladle metallurgy facility station baghouse	0.0046	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.027	pound/ton of steel
152, Charge Aisle and relading desulfurization (hot metal station) baghouse	0.026	pound/ton of molten iron handled
150, Truck and ladle hopper baghouse	0.01	pound/ton of flux
151, Flux storage batch baghouse	0.007	pound/ton of flux
153, No.2 BOF Roof Monitor	0.03	pound/ton of steel
158, No.2 BOF Caster Roof Monitor	0.0035	pound/ton of slabs

PM₁₀ (Filterable and Condensable)

Stack ID, associated equipment	Type of fuel combusted at the equipment	PM ₁₀ emissions factors (pound/MMSCF of fuel)
147, No.10 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	7.6
148, No.20 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	7.6

Stack ID, associated equipment	PM ₁₀ emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	0.057	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	0.057	pound/ton of steel
154, Ladle metallurgy facility station baghouse	0.0064	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.028	pound/ton of steel
152, Charge Aisle and relading desulfurization (hot metal station) baghouse	0.0213	pound/ton of molten iron handled
150, Truck and ladle hopper baghouse	0.011	pound/ton of flux
151, Flux storage batch baghouse	0.0071	pound/ton of flux
153, No.2 BOF Roof Monitor	0.01866	pound/ton of steel
158, No.2 BOF Caster Roof Monitor	0.0015	pound/ton of slabs

SO₂

Stack ID, associated equipment	Type of fuel combusted at the equipment	SO ₂ emissions factors (pound/MMSCF of fuel)
147, No.10 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	0.6
148, No.20 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	0.6

Stack ID, associated equipment	SO ₂ emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	0.07	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	0.07	pound/ton of steel
154, Ladle metallurgy facility station baghouse	0.025	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.014	pound/ton of steel

152, Charge Aisle and relading desulfurization (hot metal station) baghouse	0.0094	pound/ton of molten iron handled
153, No.2 BOF Roof Monitor	0.0004	pound/ton of steel

CO

Stack ID, associated equipment	Type of fuel combusted at the equipment	CO emissions factors (pound/MMSCF of fuel)
147, No.10 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	84
148, No.20 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	84

Stack ID, associated equipment	CO emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	13.55	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	13.55	pound/ton of steel
154, Ladle metallurgy facility station baghouse	0.042	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.139	pound/ton of steel
Gas Cleaning System	0.022	pound/ton of steel
153, No.2 BOF Roof Monitor	0.0042	pound/ton of steel

NO_x

Stack ID, associated equipment	Type of fuel combusted at the equipment	NO _x emissions factors (pound/MMSCF of fuel)
147, No.10 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	100
148, No.20 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	100

Stack ID, associated equipment	NO _x emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	0.08	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	0.08	pound/ton of steel
154, Ladle metallurgy facility station baghouse	0.003	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.02	pound/ton of steel
152, Charge Aisle and relading desulfurization (hot metal station) baghouse	0.0024	pound/ton of molten iron handled
153, No.2 BOF Roof Monitor	0.0006	pound/ton of steel

VOC

Stack ID, associated equipment	Type of fuel combusted at the equipment	VOC emissions factors (pound/MMSCF of fuel)
147, No.10 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	5.5
148, No.20 Basic Oxygen Furnace, Flare stack ignitors	Natural gas	5.5

Stack ID, associated equipment	VOC emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	0.001	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	0.001	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.005	pound/ton of steel
152, Charge Aisle and relading desulfurization (hot metal station) baghouse	0.001	pound/ton of molten iron handled
153, No.2 BOF Roof Monitor	0.00015	pound/ton of steel
158, No.2 BOF Caster Roof Monitor	0.002	pound/ton of slabs

Pb

Stack ID, associated equipment	Pb emissions factors	Units
147, No.10 Basic Oxygen Furnace scrubber	0.00006	pound/ton of steel
148, No.20 Basic Oxygen Furnace scrubber	0.00006	pound/ton of steel
154, Ladle metallurgy facility station baghouse	4 E -06	pound/ton of steel
149, Secondary ventilation system for No.2 BOF shop scrubber	0.000165	pound/ton of steel

152, Charge Aisle and relading desulfurization (hot metal station) baghouse	0.000001881	pound/ton of molten iron handled
153, No.2 BOF Roof Monitor	0.000023	pound/ton of steel

No.4 BOF shop emission points:

PM

Stack ID, associated equipment	PM emissions factors	Units
38, No.4 BOF shop off gas scrubber	0.171	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	22.3	pound/hour
26, Relading and desulfurization (hot metal station) baghouse (North)	0.00512	pound/ton of hot metal
27, Relading and desulfurization (hot metal station) baghouse (South)	0.00512	pound/ton of hot metal
32, RHOB condensers stack	0.0004	pound/ton of steel
33, RHOB material handling stack	0.002	pound/ton of steel
28, Furnace additive bin loading	0.001	pound/ton of alloys
31, Torch cut	0.0035	pound/ton of steel
35, Furnace additive hopper house	0.001	pound/ton of alloys
29, No.4 BOF Roof Monitor	0.03	pound/ton of steel

PM₁₀ (Filterable and Condensable)

Stack ID, associated equipment	PM ₁₀ emissions factors	Units
38, No.4 BOF shop off gas scrubber	0.177	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	23.74	pound/hour
26, Relading and desulfurization (hot metal station) baghouse (North)	0.017	pound/ton of hot metal
27, Relading and desulfurization (hot metal station) baghouse (South)	0.017	pound/ton of hot metal
32, RHOB condensers stack	0.0002	pound/ton of steel
33, RHOB material handling stack	0.002	pound/ton of steel
28, Furnace additive bin loading	0.001	pound/ton of alloys
31, Torch cut	0.002025	pound/ton of steel
35, Furnace additive hopper house	0.001	pound/ton of alloys
29, No.4 BOF Roof Monitor	0.0183	pound/ton of steel

SO₂

Stack ID, associated equipment	SO ₂ emissions factors	Units
38, No.4 BOF shop off gas scrubber	0.001	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	0.001	pound/ton of steel
26, Relading and desulfurization (hot metal station) baghouse (North)	0.0094	pound/ton of hot metal
27, Relading and desulfurization (hot metal station) baghouse (South)	0.0094	pound/ton of hot metal
29, No.4 BOF Roof Monitor	0.00003	pound/ton of steel

CO

Stack ID, associated equipment	CO emissions factors	Units
38, No.4 BOF shop off gas scrubber	8.031	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	0.139	pound/ton of steel
32, RHOB condensers stack	0.0214	pound/ton of steel
Gas Cleaning System 4 BOF	0.047	pound/ton of steel
Gas Cleaning System 4BOF RHOB	0.0925	pound/ton of steel
29, No.4 BOF Roof Monitor	0.0042	pound/ton of steel

NO_x

Stack ID, associated equipment	NO _x emissions factors	Units
38, No.4 BOF shop off gas scrubber	0.08	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	0.02	pound/ton of steel

26, Relading and desulfurization (hot metal station) baghouse (North)	0.0024	pound/ton of hot metal
27, Relading and desulfurization (hot metal station) baghouse (South)	0.0024	pound/ton of hot metal
29, No.4 BOF Roof Monitor	0.0006	pound/ton of steel

VOC

Stack ID, associated equipment	VOC emissions factors	Units
38, No.4 BOF shop off gas scrubber	0.001	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	0.005	pound/ton of steel
26, Relading and desulfurization (hot metal station) baghouse (North)	0.001	pound/ton of hot metal
27, Relading and desulfurization (hot metal station) baghouse (South)	0.001	pound/ton of hot metal
31, Torch cut	0.002	pound/ton of steel
29, No.4 BOF Roof Monitor	0.00015	pound/ton of steel

Pb

Stack ID, associated equipment	Pb emissions factors	Units
38, No.4 BOF shop off gas scrubber	0.00017	pound/ton of steel
37, Secondary ventilation system for No.4 BOF shop scrubber	0.00017	pound/hour
26, Relading and desulfurization (hot metal station) baghouse (North)	9.4 E -07	pound/ton of hot metal
27, Relading and desulfurization (hot metal station) baghouse (South)	9.4 E -07	pound/ton of hot metal
32, RHOB condensers stack	0.000032	pound/ton of steel
33, RHOB material handling stack	6 E -07	pound/ton of steel
29, No.4 BOF Roof Monitor	0.000038	pound/ton of steel

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Source Modification and Major Modification for Prevention of Significant Deterioration

Source Background and Description

Source Name:	Ispat Inland, Inc.
Source Location:	3210 Watling Street, East Chicago, 46312
County:	Lake
SIC Code:	3312
Operation Permit No.:	089-6577-00316
Operation Permit Issuance Date:	Not yet issued
Significant Source Modification No.:	089-16966-00316
Permit Reviewer:	Gurinder Saini

The Office of Air Quality (OAQ) has reviewed a modification application from Ispat Inland, Inc. (Ispat) relating to the following changes:

Changes as part of this project to increase production at No.7 Blast Furnace

- (a) Modifications to existing Blast Furnace identified as No.7, by a detailed reline and the addition of a fourth blast air heating stove to provide additional blast capacity, exhausting to stack 170. This modification is intended to increase production of hot metal from this furnace by 772,620 tons per year.
- (b) Additional 274,178 tons per year of pulverized coal for injection into the No.7 Blast Furnace will be supplied by the existing pulverized coal injection system without any changes to the existing equipment.
- (c) The usage of iron bearing self-fluxing pellets as raw material for molten metal production at No.7 Blast Furnace will increase by 1,295,275 tons per year.
- (d) Increased consumption of coke at No.7 Blast Furnace by 112,132 tons per year, either from the on-site coke plant operated by Indiana Harbor Coke Company or purchased from an offsite producer.
- (e) Utilization of an additional 28,082 MMSCF per year of blast furnace gas at the No.5 Boiler House to generate steam. This usage of additional blast furnace gas will likely reduce the use of natural gas at the No.5 Boiler House
- (f) Any additional blast furnace gas, which cannot be utilized, will be consumed in the three velocity nozzle flare identified as stack 195 at No.7 Blast Furnace.
- (g) To shutdown the 2A Blooming Mill and 21 inch Bar Mill.
- (h) Increased lime production at No.1 lime plant and consumption at No.2 and/or No.4 BOF shop by 29,785 tons per year. This will result in an increase of natural gas usage by 146 MMSCF per year.

- (i) The increased hot metal production at No.7 Blast Furnace will be processed at the existing No.2 and/or No.4 Basic Oxygen Furnaces (BOF) shops to produce additional steel. The steel production will increase by approximately 772,620 tons per year.

Modifications in contemporaneous period for this modification from 1998 to 2003

- (j) No. 4 AC Station – The emissions unit consisting of five boilers identified as 401 through 405 that were shutdown in April 1999.
- (k) 80-Inch No. 4 WBF Project - Shutdown of two pusher furnaces and installation of No. 4 Walking Beam Furnace in 2001.
- (l) EAF Vacuum Degasser – Permitted in March 1999.
- (m) No. 6 Continuous Coating Line – Permitted in May 1999.
- (n) Slag Granulation/Pelletization - Installation reduced emissions by cooling and processing slag currently handled in the slag pits. The curtailment of slag pits occurred in 2002.
- (o) EAF Direct Reduced Iron System - Installation of system to handle Direct Reduced Iron at No. 1 EAF, started up in 2002.

The following emissions units and control devices are affected due to this modification at No.7 Blast Furnace:

1. No.7 Blast Furnace:
 - (a) Casthouse No.7 Blast Furnace controlled by:
 - (A) east baghouse exhausting to stack 167
 - (B) west baghouse exhausting to stack 166
 - (b) Coke screening station controlled by baghouse exhausting to stack 169
 - (c) Stockhouse coke handling controlled by baghouse exhausting to stack 172
 - (d) Stockhouse pellet handling controlled by baghouse exhausting to stack 168
 - (e) No.7 Blast Furnace stoves exhausting to stack 170
 - (f) Slag pit operation
 - (g) Slag granulator and pelletizer operation
 - (h) Gas Cleaning System
 - (i) Flare stack 195
 - (j) Roof Monitor 171
2. No.5 Boiler House:

No.5 Boiler House exhausting to stack 134, to the extent increases in the usage of blast furnace gas from No.7 Blast Furnace at this unit.
3. Pulverized Coal Injection plant:
 - (a) Coal transfer A controlled by baghouse exhausting to stack 185
 - (b) Coal storage C controlled by baghouse exhausting to stack 186
 - (c) Coal pulverizer D controlled by baghouse exhausting to stack 187
 - (d) Coal pulverizer E controlled by baghouse exhausting to stack 188
 - (e) Coal storage F controlled by baghouse exhausting to stack 189
 - (f) Coal storage G controlled by baghouse exhausting to stack 190
 - (g) Coal unloading system exhausting to stack 192
4. No.1 Lime Plant:

- (a) Lime plant storage silo controlled by baghouse exhausting to stack 47
 - (b) No.1 and No.2 Lime Kiln controlled by two (2) baghouses exhausting to stack 45 and 49
 - (c) Lime plant fugitive control micro-pulse controlled by baghouse exhausting to stack 46
 - (d) Lime plant truck loadout controlled by baghouse exhausting to stack 48
5. No.2 BOF shop:
- (a) No.10 Basic Oxygen Furnace controlled by scrubber exhausting to stack 147
 - (b) No.20 Basic Oxygen Furnace controlled by scrubber exhausting to stack 148
 - (c) Ladle metallurgy facility station controlled by baghouse exhausting to stack 154
 - (d) Secondary ventilation system for No.2 BOF shop controlled by scrubber exhausting to stack 149
 - (e) Charge Aisle and Hot Metal Station controlled by baghouse exhausting to stack 152
 - (f) Truck and ladle hopper controlled by baghouse exhausting to stack 150
 - (g) Flux storage batch controlled by baghouse exhausting to stack 151
 - (h) Gas Cleaning System
 - (i) No.2 BOF Roof Monitor 153
 - (j) No.2 BOF Caster Roof Monitor 158
6. No.4 BOF shop:
- (a) No.4 BOF shop off gas controlled by scrubber exhausting to stack 38
 - (b) Secondary ventilation system for No.4 BOF shop controlled by baghouse exhausting to stack 37
 - (c) Hot Metal Station (North) controlled by baghouse exhausting to stack 26
 - (d) Hot Metal Station (South) controlled by baghouse exhausting to stack 27
 - (e) RHOB condensers stack exhausting to stack 32
 - (f) RHOB material handling stack controlled by baghouse exhausting to stack 33
 - (g) Gas Cleaning System 4 BOF
 - (h) Gas Cleaning System 4 BOF RHOB
 - (i) Furnace additive bin loading exhausting to stack 28
 - (j) Torch cut exhausting to stack 31
 - (k) Furnace additive hopper house exhausting to stack 35
 - (l) No.4 BOF Roof Monitor 29

History

On March 26, 2003, Ispat Inland, Inc. submitted an application to IDEM, OAQ requesting permission to modify the existing No.7 Blast Furnace equipment. Ispat submitted an application for a Part 70 Operating Permit on September 16, 1996. This Part 70 Operating Permit is presently under review by IDEM.

Description of the modification

Ispat owns and operates a fully integrated iron and steel mill in East Chicago, Indiana. Ispat is proposing to modify No. 7 Blast Furnace, by a detailed reline and the addition of a fourth blast air heating stove. These changes will increase the hot metal (molten iron) production at No. 7 Blast Furnace, thus increasing the steel production at the plant's downstream Nos. 2 and 4 Basic Oxygen Furnace (BOF) Shops.

The increased hot metal production at No. 7 Blast Furnace will require increased consumption of pulverized coal from the plant's Pulverized Coal Injection (PCI) Facility, increased consumption of

self-fluxing iron-bearing pellets and the Coke. The increased steel production at No. 2 and 4 BOF Shops will require increased consumption of lime (fluxing agent) at the BOF shops. This will require increased production of lime at the facility's Lime Plant. The increased hot metal production at No. 7 Blast Furnace will result in increased production and consumption of blast furnace gas (BFG). The net effect of the changes in BFG production will be additional BFG available for No.7 Blast Furnace Stoves and steam generation at No. 5 Boiler House, both support units for No.7 Blast Furnace.

No. 7 Blast Furnace

The iron-bearing material, carbon-bearing material and flux are charged into the top of the blast furnace. Heated air (hot blast air) is forced into the bottom. Coal or natural gas is injected into the hot blast as it enters the furnace. The heated air oxidizes (burns) the carbon in the furnace burden and injected fuels to form carbon monoxide (CO). The carbon oxidation reaction gives off heat, which melts the burden material. This process reduces the iron oxides in the furnace to elemental iron. The reduction and melting process is referred to as smelting.

The flux, which is added with the burden, reacts with non-ferrous elements (impurities) in the iron-bearing and carbon-bearing materials to separate them from the molten iron. These reactions form a molten slag, which is lighter than the molten iron and floats on the surface of the hot metal. When the molten content of the furnace is tapped, the hot metal and slag flow from the taphole into an iron trough. The trough is equipped with a slag skimmer, which diverts the floating slag to slag runners, which then directs the slag to an outside contracted slag granulation/pelletization facility. The hot metal flows under the skimmer from the trough into iron runners, which direct the hot metal to refractory lined "submarine cars". These rail cars transport the hot metal to the BOF Shops.

The hot blast air is supplied from heating stoves. Cold blast air, under pressure produced by turbo-blowers, is passed through a lattice of heated refractory brickwork (checkerwork) where it is heated to hot blast air. The checkerwork is heated by the combustion of blast furnace gas, a by-product of the smelting process, and some natural gas. Blast furnace gas has a low heating value and some natural gas is added to augment heat supplied to the checkerwork.

The stoves are operated sequentially. The checkerwork in some stoves is being heated while the cold blast air is being heated in other stoves. After the temperature of the checkerwork in an active stove falls below the set point, that stove is placed in the heating (inactive) mode while a formerly "inactive" stove is placed in the active mode (i.e., heating cold blast air).

Ispat has provided information in letters dated March 18, 2003 and June 18, 2003 that as part of this PSD approval, Ispat will conduct a detailed relining project for the No.7 Blast Furnace. This project includes the following aspects:

- ? Replace all furnace copper cooling plates and refractory in the bosh, belly and lower stack with water-cooled staves.
- ? Replace throat armor with new cast iron stove assembly.
- ? Replace hearth bottom and sidewall refractory with high-grade refractory.
- ? Install new furnace top equipment including new distribution chute, reinforced gearbox, lower seal valve housing, rocker enclosed top and top gas recovery system.
- ? Rehabilitate raw gas system including a new downcomer and a new high efficiency dust cyclone; repair offtakes, uptakes and transition areas.
- ? Replace Bischoff scrubber and install a new de-mister; repair/replace gas mains, water and hydraulic piping; upgrade hydraulic systems.
- ? Replace deteriorated cast house emissions ductwork; modify troughs with a new profile.
- ? Rehabilitate existing stoves including burner replacement for stove #1, burner repairs for stove #2, and interface refractory (stoves #1 & #2); repair dome steel & stove burner, replace dome

- refractory and 11% of stove checkers (stove #3).
- ? Replace all hot blast main and bustle pipe refractory.
- ? Replace stacker reclaimer main bearing, modify No. 9 truck dump conveyor, No. 2 West conveyor belt replacement, PCI grinder drive reductions and PCI piping and valving.
- ? Perform pre-blowdown activities, bottom tap, wind leak test, electrical contract support and project/construction management.

Emission changes due to this reline are accounted for in this PSD approval.

The proposed project also involves the addition of a fourth heating stove at No. 7 Blast Furnace, which is presently equipped with three stoves. The addition of the fourth stove initially will enable the current three-stove operation to continue while needed repairs are made to each of the existing three stoves in sequence over a period of approximately three years. Upon completion of the repairs to the existing stoves, the full potential of the project will be realized with respect to hot metal production increases. This final four-stove operation will enable a higher volume of hot blast air (wind rate) to be supplied to the furnace at a higher temperature. This operation will provide the desired increase in hot metal production by increasing the smelting rate.

The project is expected to result in an increase in the hot metal production capacity at No. 7 Blast Furnace by approximately 772,620 tons per year, thus increasing the facility's total annual production of hot metal to approximately 4.4 million tons per year.

Nos. 2 and 4 Basic Oxygen Furnace Shops

The BOF steelmaking process consists of removing carbon and other impurities from molten iron to produce molten steel. The hot metal produced at the blast furnaces is brought to the BOF shops in submarine cars. This hot metal is charged into refractory lined vessels along with steel scrap, fluxing agents and metallurgical additives. The conversion to steel is done by blowing oxygen through a lance at supersonic speed into the molten bath. The reaction of oxygen with the carbon forms carbon monoxide, which is released from the molten bath and burned to carbon dioxide (CO₂) prior to discharge to the atmosphere. The oxidation reaction produces heat and removes carbon from the bath. Reactions of the non-ferrous impurities with flux produces a slag. The slag and molten steel are tapped from the furnace. After refinement in an LMF or RHOB, the molten steel is cast into steel slabs at the continuous casters. Each of the two BOF Shops is equipped with a continuous casting facilities.

The additional hot metal that will result from the project will be utilized at the two BOF Shops to produce additional steel. It is expected that the project will increase plant-wide production of steel by approximately 772,620 tons per year.

2A/21-Inch Blooming Facility and Mill

The project includes the shutdown of the 2A/21-Inch Blooming Facility and Mill. The combination slab/bloom caster can no longer support the additional steel production at the No. 2 BOF. The switch from slab to bloom would cause undue production delays associated with conversions. Therefore to achieve continuous, safe and economical production at No.2 BOF bloom production will be stopped. As a result, the bloom caster at the No. 2 BOF will be permanently retired along with its downstream processing facility, the 2A/21-Inch Blooming Facility and Mill.

Pulverized Coal Injection Facility

The carbon-bearing materials used at No. 7 Blast Furnace are coke and pulverized coal. The pulverized coal is produced at the Pulverized Coal Injection (PCI) Facility, where selected coals are received and processed (crushed, screened and dried). Coal from the PCI Facility is pneumatically

transported to No. 7 Blast Furnace.

The project will result in an increase in the rate of pulverized coal consumption at No. 7 Blast Furnace and in the amount of pulverized coal produced at the PCI Facility by approximately 274,178 tons per year.

Self Fluxing Pellets Handling Facilities

The iron-bearing materials utilized at No. 7 Blast Furnace are self-fluxing pellets and sinter. The pellets contain both iron oxide and limestone. Sinter is a fused iron and flux-bearing material produced at the plant's Sinter Plant. The project will result in an increase in the consumption of pellets at No. 7 Blast Furnace of approximately 1,295,275 tons per year. There is no increase expected in the consumption of sinter as a result of this project.

Lime Plant

The fluxing agent used in the steel-making process at Nos. 2 and 4 BOF Shops is lime (burnt lime and dolomitic lime). The lime utilized at the BOF Shops is produced at the Ispat's lime plant where limestone and dolomite are heated in a rotary kiln. Heat is supplied by the combustion of fuels (natural gas and residual oil).

The project is expected to result in an increase in lime consumption at the BOF Shops of approximately 29,785 tons per year. This increased production of lime will require increased consumption of natural gas at the lime plant. The anticipated increase in natural gas consumption is approximately 146 million standard cubic feet per year (MMSCF/yr).

No. 5 Boiler House

The blast furnace smelting process generates a by-product gas referred to as blast furnace gas (BFG). The BFG contains high concentrations of carbon monoxide, which is a flammable gas. It also contains low concentrations of hydrogen, which is flammable. A portion of the BFG produced at No. 7 Blast Furnace is burned at No. 5 Boiler House to generate steam for the plant. Natural gas is also burned at No. 5 Boiler House to generate steam.

The project is expected to result in an increase in the amount of BFG generated and an increase in the amount of BFG consumed at No. 7 Blast Furnace. It is expected that the amount of BFG generated will increase by approximately 37,665 million standard cubic feet per year (MMSCF/yr). Of this increase, approximately 9,583 MMSCF/yr will be utilized at the No. 7 Blast Furnace stoves to support the increase in hot metal production. The remaining 28,082 MMSCF/yr will be burned at No. 5 Boiler House to generate steam or flared at No. 7 Blast Furnace flare stacks during periods when it cannot be beneficially used at No. 5 Boiler House. The use of more BFG at No. 5 Boiler House will likely result in a decrease in natural gas consumption. However, this decrease is not included in estimates of emissions increases attendant to the project.

Coke Plant

Ispat has a contract with an on-site coke plant for the delivery of most of the coke used at the No. 7 Blast Furnace. The coke plant is currently producing its maximum capacity with total annual production divided between the Ispat blast furnaces and off-site sales. The consumption of coke will increase at No. 7 Blast Furnace as a result of the project by approximately 112,132 tons per year. However, the project cannot result in an increase in coke production because of the full utilization of coke plant capacity now. The project will result in a decrease in the amount of coke sold offsite equal to the increase in coke consumption at No. 7 Blast Furnace.

Sinter Plant

This project will not result in increased sinter consumption at No. 7 Blast Furnace. The current pellets to sinter ratio will be changed at No. 7 Blast Furnace. The additional iron units required to support increased hot metal production will be supplied exclusively by self-fluxing pellets.

80-Inch Hot Strip Mill

The cast steel slabs produced at the Nos. 2 and 4 BOF Shops are hot rolled to coiled steel strip (hot rolled bands) at the 80-Inch Hot Strip Mill. The slabs currently being processed at the hot strip mill come from two sources: (1) produced at the plant's two BOF Shops and (2) purchased from off-site sources. The project will not affect the total amount of steel slabs processed annually at the hot strip mill. The project will have the effect of decreasing the tons of slabs purchased from off-site sources.

Stack Summary

Stack ID	Emissions unit associated	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
170	#7 Blast Furnace Stoves	230	17.0	646,582	500
166	#7 Blast Furnace Casthouse Baghouse West	15	10.26	500,000	64
167	#7 Blast Furnace Casthouse Baghouse East	154	11.0	299,378	131
171	#7 Blast Furnace Cast house roof monitor				
134	No.5 Boiler house common stack	225	17	631,083	273
195	No.7 Blast Furnace gas flare equipped with 3 velocity nozzles	183	8.7	N/A	

Enforcement Issue

On May 16, 2003, U.S.EPA signed an Administrative Order on Consent with Ispat Inland, Inc. This order allowed Ispat to make the following changes to No.7 Blast Furnace before issuance of the permit approval 089-16966-00316:

1. Begin alteration to the Hot Blast Main to accommodate the 4th stove.
2. Begin alteration to the Waste Gas Collecting Main to accommodate the 4th stove.
3. Begin the detailed relining project for the No.7 Blast Furnace.

Therefore, there are no enforcement issues pending related to this modification.

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 26, 2003. Additional

information was received on June 18, 2003 in an addendum letter and other information received during the course of review of this permit.

Emission Calculations

See Appendix A of this document for detailed emissions calculations. Appendix A is divided into two parts. Pages 1 through 20 contain the emissions calculations due to this modification at the Source. In addition in subsequent pages 1 through 18 contain detailed annual emissions calculations using the emission factors submitted along with the application.

Potential To Emit (PTE) for the Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA."

This table reflects the change in the PTE of the No.7 Blast Furnace itself to evaluate the status of the modification under 326 IAC 2-7-10.5 (Part 70 Permits: Source Modifications).

Pollutant	Potential To Emit for the Modification(tons/year)
PM	31.94
PM-10	49.86
SO ₂	156.29
VOC	5.49
CO	316.14
NO _x	149.19
Lead	0.0017

HAPs	Potential to Emit (tons/year)
Single HAP	<10
Total HAPs	<25

Justification for Modification

The Part 70 Source is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5 (f) (1) because this project is major for 326 IAC 2-2 (Prevention of Significant Deterioration). This modification is major for PSD review, because the net emissions increase from this modification is greater than significance thresholds under 326 IAC 2-2-1 as explained in the following sections.

County Attainment Status

The source is located in Lake County.

Pollutant	Status
PM-10	Moderate*
SO ₂	Primary
NO ₂	Attainment

Ozone	Severe
CO	Maintenance
Lead	Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Lake County has been designated as nonattainment for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.
- (b) Lake County has been classified as non-attainment for PM-10* and SO₂. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.
- (c) Lake County has been classified as attainment or unclassifiable for CO, NO₂ and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

*Lake County has been federally redesignated in 40 CFR 81.315 as attainment for PM10. The Air Pollution Control Board will be making the same redesignation under the state rules in near future.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	>25
PM-10	>15
SO ₂	>40
VOC	>25 (de-minimis under 326 IAC 2-3)
CO	>100
NOx	>40

This existing source is a major stationary source because at least one regulated pollutant is emitted at a rate of 100 tons per year or more, and it is one of the 28 listed source categories.

Controlled Potential to Emit

- (a) The net emissions increase based on future potential to emit and past actual emissions from the proposed modification are (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Netting evaluation

Increases Attendant to Project	Criteria Air Pollutants Emission Rates (tons/yr)					
	PM	PM10	SO2	CO	NOx	Pb
Blast Furnace No. 7	31.94	49.86	156.29	316.14	149.18	0.0017
PCI	1.16	0.90	0.00	0.00	0.00	0.0000
Lime Plant	1.52	1.53	0.04	59.62	0.06	0.0019
No. 2 BOF*	57.18	51.73	45.90	5316.18	41.75	0.0985
No. 4 BOF*	0.00	0.00	0.00	0.00	0.00	0.0000

No. 5 Boiler House	9.56	63.38	206.41	193.01	323.75	0.0009
Fugitive Emissions	28.82	6.02				
Shutdown of No. 2A Blooming Mill/21-Inch Bar Mill	(5.02)	(4.98)	(0.37)	(52.02)	(116.34)	(0.0533)
Project Emissions	125.11	168.44	408.28	5832.95	398.42	0.05

*The molten metal from the No.7 Blast Furnace can be processed either at No.2 or No.4 BOF. The emissions of all pollutants other than PM/PM10 are worst case where all the additional hot metal is routed to No.2 BOF. The emissions of CO end up as major and phenomenally higher in this case than the case when all the additional hot metal is routed to No.4 BOF. Therefore, for clarity, IDEM, OAQ has presented only one scenario where all of the additional hot metal is routed to No.2 BOF as worst case. For PM/PM10, Ispat has enough credits available in the contemporaneous period to net out of major NSR review.

Contemporaneous and Creditable Changes			Criteria Air Pollutants Emission Rates (tons/yr)					
Emissions unit	Shutdown/Modification Year	Startup Year	PM	PM10	SO2	CO	NOx	Pb
No. 4 AC Station*	1999		(605.80)	(605.80)	(1,355.50)	(202.50)	(3,284.00)	(0.36)
80-Inch No. 4 WBF Project	2001		(0.14)	(0.14)	(0.01)	1.08	(51.74)	
EAF Vacuum Degasser		2001	1.40	1.40	0.10	25.10	18.20	
No. 6 CGL		2001	6.10	6.10	0.50	5.43		
Slag pits (curtailment)	2002		(402.98)	(197.00)	(287.04)	(42.71)	(12.32)	
Slag Granulation/Pelletization		2002	307.53	144.96	50.66	32.93	5.07	
EAF DRI		2002	8.68	5.84				
Contemporaneous and Creditable Emissions Changes			(685.20)	(644.64)	(1,591.29)	(180.67)	(3,324.79)	(0.36)
Net Emissions Changes			(560.09)	(476.20)	(1,183.02)	5,652.28	(2,926.38)	(0.31)

*The actual emissions from the No.4 AC station in the baseline period were higher than these numbers. These numbers represent the allowable portion of baseline emissions in 1996-1997 which was allowed to be emitted from the No.4 AC station in the construction permit amendment 089-14245-00316 issued on November 30, 2001. In accordance with 326 IAC IAC 2-2-1 (cc)(2)(E)(i), the allowable emissions are used as credit because these are lower than the actual emissions in the baseline period.

In addition in case of the SO₂ emissions from the No.4 AC station, to calculate creditable decreases, IDEM, OAQ used the Continuous Emissions Monitoring System (CEMs) data submitted on June 30, 2003. In a letter dated June 18, 2003, Ispat has contested the use of CEM data to establish baseline actual emissions from the 4 AC station for SO₂. Ispat has stated that "...[I]t will illegitimately underestimate the SO₂ emission decreases from the shutdown [of 4 AC station]. Specifically, Ispat has already demonstrated that its use of emission factors and fuel usage, rather than CEM data to calculate creditable decreases is wholly appropriate". IDEM, OAQ disagrees with this reasoning and believes that it has appropriately used the CEMs data to calculate the SO₂ creditable decreases from the 4 AC station.

The detailed emission calculations for the above are shown in pages 1 through 20 of the Appendix-A attached to this TSD.

- (a) Ispat has selected the baseline timeframe for the No.7 Blast Furnace to calculate the increase in 'actual emissions' from July 1996 to June 1998. Ispat has presented information in the application that the operation of No.7 Blast Furnace was not 'normal' during a more recent timeframe due to catastrophic failures causing production rate to be lowered.

Therefore, the operation during the baseline period of 1996-1998 is representative of 'normal operation'. This is consistent with the definition of 'actual emissions' under 326 IAC 2-2-1 (b), which allows the department discretion to use a different time period upon a determination that it is more representative of 'normal source operation'.

In a letter¹ U.S. EPA stated that, "The pre-change 2-year period used in determining the current actual baseline emissions must be representative of 'normal' operations. Sources desiring to use **other than a 2-year period** or a **baseline period prior to the last 5 years** may seek the Permitting Authority's specific determination that **such period is more representative of normal operations**" [emphasis added].

- (b) The net emissions increase because of this modification to an existing major stationary source is significant for CO because it is greater than the PSD significance level. Therefore, this modification is subject to the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) for major modification for CO emissions.
- (c) The CO contained in the blast furnace gas (BFG) from the No.7 Blast Furnace (only unit being modified and therefore subject to the requirements of 326 IAC 2-2-3 (Control Technology Review; requirements) to BACT) shall be controlled by combusting it in the associated Stoves and/or No.5 Boiler House. In addition the BFG will be combusted at a flare associated with No.7 Blast Furnace only when it cannot be otherwise utilized safely and cost effectively.
- (d) There is no net emissions increase from this modification for all regulated pollutants except CO in the above table. Therefore, these pollutants are not subject to major NSR review under 326 IAC 2-2 and 326 IAC 2-3. The permit will contain conditions to make the decreases in the contemporaneous period creditable by providing enforceable conditions restricting or shutting down the emissions units in the netting table.

The following table shows the VOC emissions increases due to this source modification project at Ispat for the purpose of evaluating the applicability of de-minimis under 326 IAC 2-3-1(l).

De minimis evaluation

Emission Unit	VOC (tons/year)
<i>Source Modification Project</i>	
Blast Furnace No. 7	5.49
PCI	0.00
Lime Plant	0.00
No. 2 BOF	3.57
No. 4 BOF	0.00
No. 5 Boiler House	0.04
Fugitive Emissions	0.00
Shutdown of No. 2A Blooming Mill/21-Inch Bar Mill	(34.44)
Project net emissions increase	(25.3)

The 'net emissions increase' from the 'source modification project' is less than zero (0). Therefore pursuant to 326 IAC 2-3-1(w) there is no net emissions increase from this source modification

¹ See letter from Richard R.Long, Director, Air and Radiation Program, to Gary D.Helbling of North Dakota Health Department, "EPA Region VIII's Opinion on Otter Trail Power Company's Coyote Station Low Pressure Rotor Upgrade Proposal", April 17, 2001. (This letter is available in the database maintained by U.S.EPA Region VII at <http://www.epa.gov/region7/programs/artd/air/policy/policy.htm>)

project and no further analysis for evaluation of 'de minimis' is required.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 (T 089-6577-00316) application on September 16, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

Federal Rule Applicability

- (a) The construction for the No.2 BOF shop commenced prior to June 11, 1973. Therefore this shop is not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR 60 Subpart N), Standard of Performance for Primary Emissions from Basic Oxygen Process Furnaces for which construction is commenced after June 11, 1973 because it was constructed before the applicability date for this rule.
- (b) The construction for the No.4 BOF shop commenced prior to June 11, 1973. Therefore this shop is not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR 60 Subpart N), Standard of Performance for Primary Emissions from Basic Oxygen Process Furnaces for which construction is commenced after June 11, 1973 because it was constructed before the applicability date for this rule.
- (c) The No.2 and No.4 BOF shops are not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR 60 Subpart N), Standard of Performance for Primary Emissions from Basic Oxygen Process Furnaces for which construction is commenced after June 11, 1973, under §60.142 (b) as reconstructed unit after January 20, 1983. The No.2 and No.4 BOF shops are neither modified nor reconstructed as part of this project as described in 40 CFR §60.14 or §60.15 after January 20, 1983. Even though the increase in production rate as part of this project would cause an increase in emissions rate in kg/hour of pollutants for which a standard is applicable, this increase can be accomplished without a capital expenditure on the BOF shops. Therefore, this change is not considered a modification. In addition there will be no replacement of components for the purpose of accomplishing the production increase at the BOF shops. Therefore, this change does not constitute a reconstruction.
- (d) The No.2 and No.4 BOF shops are not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR 60 Subpart Na), Standard of Performance for Secondary Emissions from Basic Oxygen Process Steel-making facilities for which the construction is commenced after January 20, 1983. The No.2 and No.4 BOF shops are neither modified nor reconstructed as part of this project as described in 40 CFR §60.14 or §60.15 after January 20, 1983. Even though the increase in production rate as part of this project would cause an increase in emissions rate in kg/hour of pollutants for which a standard is applicable, this increase can be accomplished without a capital expenditure on the BOF shops. Therefore, this change is not considered a modification. Therefore, this change does not constitute a reconstruction.
- (e) The construction of No.1 Lime Plant consisting of two kilns commenced prior to May 3, 1977. Therefore this shop is not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR 60 Subpart HH), Standard of Performance for Lime Manufacturing Plants because it was constructed before the applicability date for this rule.
- (f) There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed project.

- (g) The No.7 Blast Furnace is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Integrated Iron and Steel Manufacturing, 40 CFR 63 Subpart FFFFFF as a new affected source. This is because the fixed capital cost of two projects, consisting of detailed relining of the blast furnace and the addition of a fourth stove, is less than 50% of the fixed capital cost for the construction of a comparable Blast Furnace.
- (h) Other units such as No.2 and No.4 BOF shops, Sinter Plants (as described in affected source description in 40 CFR §63.7782) are not subject to the requirements of the NESHAP, 40 CFR 63 Subpart FFFFFF as a new affected source. This is because under the two projects, consisting of relining the blast furnace and the addition of a fourth stove, no components need to be replaced at these units and thus are not being reconstructed.
- (i) The Sinter Plant, No.7 Blast Furnace, and No.2 and No.4 BOF shops at this integrated iron and steel manufacturing facility are existing affected sources as described in the affected source description in 40 CFR §63.7782. Therefore, pursuant to 40 CFR §63.7783 the existing affected sources must comply with each limitation and maintenance requirement of 40 CFR Subpart FFFFFF, no later than May 22, 2006.
- (j) The No.1 Lime Plant at this integrated iron and steel manufacturing facility is an existing affected source as described in the affected source description in 40 CFR §63.7081 for NESHAP for Lime Manufacturing Plants 40 CFR Part 63 Subpart AAAAAA. Therefore, pursuant to 40 CFR §63.7083 the existing affected sources must comply with each limitation and maintenance requirement of 40 CFR Subpart AAAAAA, no later than three years from the date this NESHAP is published in Federal Register.
- (k) The application for the Part 70 operating permit for this source was received and determined to be administratively complete before April 20, 1998 by IDEM. In addition this significant source modification does not involve a significant permit revision because the Part 70 operating permit for this source has not yet been issued. Therefore, pursuant to 40 CFR §64.5, the requirement to submit a Compliance Assurance Monitoring (CAM) plan under 40 CFR Subpart 64 (Compliance Assurance Monitoring) shall apply at the time of renewal of the Part 70 operating permit.

State Rule Applicability - Individual Facilities

326 IAC 1-6-3 (Preventive Maintenance):

- (a) The Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) before the operation of the unit begins after it is modified, including the following information:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission units;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that lack of proper maintenance does not cause or contribute to a violation of any limitation on emissions or potential to emit.

- (c) PMP's shall be submitted to IDEM and OAQ upon request and shall be subject to review and approval by IDEM and OAQ.

326 IAC 2-2-3 (Prevention of Significant Deterioration Requirements: Best Available Control Technology)

This modification has significant net emissions increase for CO and therefore is a "major modification" under the PSD program. The Source is located in Lake County which is attainment for CO. Therefore, these emissions are subject to the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and are required to employ BACT to control emissions.

The PSD provisions require that this modification be reviewed to ensure compliance with the National Ambient Air Quality Standard (NAAQS), the applicable PSD air quality increments, and the requirements to apply the Best Available Control Technology (BACT) for the affected pollutants. The BACT determination could be an emission limitation based on the maximum degree of reduction for each pollutant subject to regulation under 326 IAC 2-2. In accordance with the "Top-Down" analysis for Best Available Control Technology, with guidance set forth in USEPA 1990 draft *New Source Review Workshop Manual*, the BACT analysis takes into account the energy, environment, and economic impacts on the source. These reductions may be determined through the application of available control techniques, process design, and/or operational limitations. These reductions are needed to demonstrate that the remaining emissions after BACT implementation will not cause or contribute to the significant air pollution thereby protecting the public health and the environment.

The attached modeling analysis, included in Appendix B, was conducted to show that the major new source does not violate the NAAQS.

BACT for CO emissions from the No.7 Blast Furnace

IDEM and Ispat have conducted a "top-down" control technology analysis to determine BACT for the blast furnace gas CO emissions. The available CO emissions control technology alternatives were identified using the following sources:

- ? "Profile of the Iron and Steel Industry," US EPA, (September 1995);
- ? AP-42 Section 12.5 - Iron and Steel Production, (January 1995); and
- ? Air Pollution Technology Fact Sheets available from the EPA Clear Air Technology Center (CATC).

Technically infeasible technologies were eliminated, and the remaining technologies were ranked by control efficiency in a top down fashion with most stringent items at the top. These technologies were then evaluated based on economic, energy, and environmental impacts. If an alternative, starting with the most stringent, was eliminated based on these criteria, the next most stringent technology was evaluated until BACT was selected.

In determining BACT, the following sources of information were evaluated:

- ? Preconstruction permits recently issued for similar sources, including a review of U.S. EPA's RACT/BACT/LAER Clearinghouse (RLBC);
- ? Emission limits proposed in State or Federal regulations; and
- ? Levels "demonstrated in practice" at other facilities as determined by other agencies.

The following sections outline the results of the evaluation to determine BACT, focusing on the recently issued permits for similar facilities, and levels "demonstrated in practice" at other facilities, including review of RLBC.

Available Control Alternatives

Carbon monoxide is formed during the reaction of carbon in the furnace burden and hot blast air inside of the blast furnace. The CO is the reducing agent in the smelting of iron oxides to elemental iron. The excess CO, not used in the smelting process, remains in the process off gas, (BFG), which is a by-product of the iron-making process. The BFG is collected near the top of the blast furnace and ducted under pressure to a gas cleaning system (dust catchers and scrubbers) where particulate matter is removed from the gas stream. The BFG contains approximately 27 percent CO and approximately one percent hydrogen (volume percents). The presence of these two flammable gases in a gas with approximately 72 percent non-flammable gases gives BFG a gross heating value between 85 and 90 BTUs per standard cubic foot. For this reason, BFG is used as a by-product fuel in the steel industry. The excess BFG not beneficially used as a fuel is burned at flare stacks before being discharged to the atmosphere.

Several control technologies are available for the control of CO emissions. The potentially applicable technologies are shown in table below. All of the technologies are based on the oxidation of CO to carbon dioxide (CO₂), that is, the burning of CO in oxygen supplied by air. The control efficiencies are the same for all three technologies (typically exceeding 98 percent).

Control Technology	Typical Control	Efficiencies
Combustion in Blast Furnace Stove or Boiler		98+%
Thermal Oxidizer w/ Heat Exchanger (Recuperative)		98+%
Flare		98+%
NOTE: From Air Pollution Technology Fact Sheet, CATC.		

Selection of BACT

It is concluded from above analysis that combustion of the CO in a blast furnace stove or boiler or flare constitutes BACT for the CO generated at the blast furnace.

There are no BACT determinations specific to CO emissions from blast furnaces listed in RBLC. However, in a recent Part 70 operating permit (Non PSD-BACT) issued to Acme Steel Company (Illinois) for a blast furnace process indicates that the blast furnace gas is burned in the associated blast furnace stoves.

There have been PSD-BACT determinations for other iron and steel-making processes. These processes also utilize combustion (oxidation) for CO control. The following table lists the control technologies and emission limits given in permits issued for these similar sources.

Date	Facility Name	State	Process	Add-on Description	CO Emission Limit	Basis
Dec 2000	Acme Steel Company	IL	Blast Furnace	Burn gas in Blast Furnace Stove	N/A	Non-PSD
Dec 2000	Acme Steel Company	IL	Blast Furnace	Gas Flare*	N/A	Non-PSD
Aug 1999	Steel Dynamics, Inc.	IN	Rotary Health Furnace (Natural Gas)	Afterburner*	1.4 lb/ton iron	BACT-PSD
Mar 1998	Steel Dynamics, Inc.	IN	Submerged Arc Furnace	Thermal Oxidation*	1.26 lb/ton iron	BACT-PSD

* These systems do not provide beneficial recovery of heat energy.

The operations at the two emissions units for Steel Dynamics in no way resemble the operation of a Blast Furnace. Therefore, the CO emission limitations at these emissions units are not further

considered in this analysis. The additional BFG that will be produced at No. 7 Blast Furnace as a result of the project will be burned in the stoves or burned at No. 5 Boiler House. For the duration when the excess BFG (not burned in the stoves) cannot be beneficially used for steam generation, it will be burned at the No. 7 Blast Furnace flare stack. The CO BACT emissions limitations are established based on [Compilation of Air Pollutant Emission Factors, Volume I. Stationary Point and Area Sources Fifth Edition](#) (AP-42) and Aerometric Information Retrieval System (AIRS) emissions factors for the combustion of natural gas and blast furnace gas. In case of casthouse baghouses these limitations are established based on past stack testing results for this facility.

PSD BACT limitations:

The following conditions identify the BACT requirements for the CO emissions:

1. Limit the CO emissions from the stack 170 associated with No.7 Blast Furnace Stoves when firing BFG to less than 13.7 lb/MMSCF of BFG.
2. Limit the CO emissions from the stack 170 associated with No.7 Blast Furnace Stoves when firing NG to less than 84 lb/MMSCF of NG.
3. Limit the CO emissions from the stack 170 associated with No.7 Blast Furnace Stoves when firing Combination Gas (a mix of NG and BFG) in terms of lb/MMSCF of mixed gas:

$$\text{CO emissions (lb/MMSCF of mixed gas)} = \frac{13.7 \times \text{Usage of BFG (MMSCF)} + 84 \times \text{Usage of NG (MMSCF)}}{\text{Total usage of BFG and NG (MMSCF)}}$$

4. Limit the CO emissions from the stack 134 associated with the No.5 Boiler House when firing BFG to less than 13.7 lb/MMSCF of BFG.
5. Limit the CO emissions from the stack 134 associated with the No.5 Boiler House when firing NG to less than 84 lb/MMSCF of NG.
6. Limit the CO emissions from the stack 134 associated with No.5 Boiler House when firing Combination Gas (a mix of NG and BFG) in terms of lb/MMSCF of mixed gas:

$$\text{CO emissions (lb/MMSCF of mixed gas)} = \frac{13.7 \times \text{Usage of BFG (MMSCF)} + 84 \times \text{Usage of NG (MMSCF)}}{\text{Total usage of BFG and NG (MMSCF)}}$$

7. Limit the CO emissions from the No.7 Blast Furnace West baghouse stack 166 to less than 0.56 pounds per ton of molten metal produced.
8. Limit the CO emissions from the No.7 Blast Furnace East baghouse stack 167 to less than 0.56 pounds per ton of molten metal produced.
9. Limit the production of molten metal from the No.7 Blast Furnace to estimated maximum capacity after the modification project, that is, less than 4,417,000 tons per 365 days period, with compliance demonstrated at the end of each day (a consecutive 24-hour period).

326 IAC 2-2-4, 5 and 6 (Air quality impacts and increment consumption)

This modification is major for PSD for CO emissions. Therefore, pursuant to 326 IAC 2-2-4, 2-2-5, 2-2-6 (PSD Requirements: Air quality analysis, Air quality impacts and increment consumption), the CO emissions from the various equipment associated with No.7 Blast Furnace operation

modification project shall not exceed 33,968.54 tons per 12 consecutive month period with compliance demonstrated at the end of each month. See Appendix A for detailed annual emissions calculations.

326 IAC 2-2-1 (x) (Prevention of Significant Deterioration Requirements: major modification non-applicability)

This modification has net emissions increase for PM, NO_x and Lead less than significance level defined in these rules. Therefore, this modification is not a "major modification" under the PSD rules. Therefore, in order to make requirements of 326 IAC 2-2-1 (x) (Major Modification) not applicable to this modification, the cumulative particulate matter (PM), oxides of nitrogen (NO_x) and Lead (Pb) emissions from the various equipment associated with the No.7 Blast Furnace operations modification project shall not exceed the following limitations:

Pollutant	Emissions (in tons per 12 consecutive month period with compliance demonstrated at the end of each month)
PM	1156.62
NO _x	2986.6
Pb	0.94

See Appendix A for detailed annual emissions calculations.

326 IAC 2-3-1(s) (Emission Offsets: major modification non-applicability)

This modification has net emissions increase for PM₁₀ and SO₂ less than significance level defined in these rules. Therefore, this modification is not a "major modification" under the Emission Offset programs. Therefore, in order to make requirements of 326 IAC 2-3-1 (s) (Major Modification) not applicable to this modification, the particulate matter less than 10 microns diameter (including filterable and condensable components) (PM₁₀) and sulfur dioxide (SO₂) emissions from the various equipment associated with the No.7 Blast Furnace operation modification project shall not exceed the following limitations:

Pollutant	Emissions (in tons per 12 consecutive month period with compliance demonstrated at the end of each month)
PM ₁₀	1460.42
SO ₂	2,336.2

See Appendix A for detailed annual emissions calculations.

326 IAC 2-3-1 (l) (Emission Offset: de-minimis applicability)

The net emissions increase of VOC, from the source modification project is less than zero (0). Therefore, pursuant to 326 IAC 2-3-1 (l) and (w) this modification is not subject to the requirements of this rule because there is no increase in VOC emissions. Therefore, in order to make requirements of 326 IAC 2-3-1 (l) (De-minimis) not applicable to this modification, the VOC emissions from the various equipment associated with the No.7 Blast Furnace operation modification project shall not exceed 54.44 tons per 12 consecutive month period with compliance demonstrated at the end of each month. See Appendix A for detailed annual emissions calculations.

326 IAC 2-4.1-1 (New Source Toxics Rule)

The New Source Toxics Control rule requires any new or reconstructed major source of hazardous

air pollutants (HAPs) for which there are no applicable NESHAP to implement maximum achievable control technology (MACT), determined on a case-by-case basis, when the potential to emit is greater than 10 tons per year of any single HAP. Information on emissions of the 187 hazardous air pollutants are listed in the OAQ Construction Permit Application, Form Y (set forth in the Clean Air Act Amendments of 1990).

The New Source Toxic Rule is not applicable because as part of this modification project any single HAP emission increase is not greater than or equal to 10 tons per year and any combination HAP emissions increase are not greater than or equal to 25 tons per year.

326 IAC 5-1 (Opacity Limitations)

The Source is located in Lake County. Therefore, pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternate Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of twenty percent (20%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-1-2 (Particulate emission limitations)

This source has potential to emit greater than 100 tons per year of particulate matter. The No.7 Blast Furnace Casthouse Roof Monitor identified as 171 and coal unloading system stack 192 is not listed in sections 8.1 through 18. Therefore, pursuant 326 IAC 6-1-1, these emissions are subject to requirements of 326 IAC 6-1-2.

- (a) Pursuant to 326 IAC 6-1-2 the No. 7 Blast Furnace Casthouse Roof Monitor (171) shall not discharge to the atmosphere any gases which contain particulate matter in excess of 0.03 grains per dry standard cubic foot of exhaust air.
- (b) Pursuant 326 IAC 6-1-2, the Coal unloading system exhausting to stack (192) shall not discharge to the atmosphere any gases which contain particulate matter in excess of 0.03 grains per dry standard cubic foot of exhaust air.

326 IAC 6-1-10.1 (Lake County PM10 emission requirements)

- (a) The No.7 Blast Furnace equipment and the upstream and downstream processes are listed with specific limitations in this section. Pursuant to 326 IAC 6-1-10.1(d)(19), PM10 and total suspended particulate (TSP) emissions from the No. 7 Blast Furnace operations including the increased capacity shall not exceed the following:
 - (1) PM10 emissions from the No. 7 blast furnace stockhouse pellet baghouse (168) shall not exceed 0.0052 grains per dry standard cubic feet and 4.00 pounds per hour.
 - (2) TSP emissions from the No. 7 blast furnace stockhouse coke baghouse (172) shall not exceed 0.01 grains per dry standard cubic feet and 2.00 pounds per hour.
 - (3) TSP emissions from the No. 7 blast furnace coke screening baghouse (169) shall not exceed 0.007 grains per dry standard cubic feet and 4.200 pounds per hour.
 - (4) PM10 emissions from the No. 7 Blast furnace (West (canopy) baghouse) (166)

shall not exceed 0.003 grains per dry standard cubic feet and 11.22 pounds per hour.

- (5) TSP emissions from the No. 7 blast furnace (East (casthouse) baghouse) (167) shall not exceed 0.011 grains per dry standard cubic feet and 22.00 pounds per hour.
 - (6) PM10 emissions from the stack serving No. 7 blast furnace stove stack (3 units) (170) shall not exceed 0.0076 pounds/MMBtu and 6.32 pounds per hour.
 - (7) PM10 emissions from the stack serving Lime Plant Silo Baghouse (47) shall not exceed 0.085 pounds per ton of lime and 5.53 pounds per hour.
 - (8) PM10 emissions from the stack serving Lime Plant No.1 Kiln Baghouse stack (45) shall not exceed 0.110 pounds per ton of lime and 7.149 pounds per hour.
 - (9) PM10 emissions from the stack serving Lime Plant No.2 Kiln Baghouse stack (49) shall not exceed 0.110 pounds per ton of lime and 7.149 pounds per hour.
 - (10) PM10 emissions from the stack serving Coal transfer baghouse A (185) shall not exceed 0.003 grain per dry standard cubic feet and 0.17 pounds per hour.
 - (11) Coal Blending System with baghouse B was never installed. Therefore this limitation is not included in the permit.
 - (12) PM10 emissions from the stack serving Coal Storage bin baghouse C (186) shall not exceed 0.003 grain per dry standard cubic feet and 0.23 pounds per hour.
 - (13) PM10 emissions from the stack serving Coal Pulverizer baghouse D (187) shall not exceed 0.0015 grain per dry standard cubic feet and 0.93 pounds per hour.
 - (14) PM10 emissions from the stack serving Coal Pulverizer baghouse E (187) shall not exceed 0.0015 grain per dry standard cubic feet and 0.937 pounds per hour.
 - (15) PM10 emissions from the stack serving Number 7 Blast Furnace coal storage bin baghouse F (189) shall not exceed 0.003 grain per dry standard cubic feet and 0.09 pounds per hour.
 - (16) PM10 emissions from the stack serving Number 7 Blast Furnace coal storage bin baghouse G (190) shall not exceed 0.003 grain per dry standard cubic feet and 0.09 pounds per hour.
 - (17) PM10 emissions from the No. 5 Boiler house 501-503 shall not exceed 0.013 lbs/MMBtu and 18.05 pounds per hour
- (b) Pursuant to 326 IAC 6-1-10.1(d)(19), PM emissions from the BOF operations shall not exceed the following:
- (1) TSP emissions from the No. 2 BOF truck and ladle hopper baghouse (150) shall not exceed 0.0052 grains per dry standard cubic foot and 0.800 pounds per hour.
 - (2) TSP emissions from the No. 2 BOF alloy and flux storage baghouse (151) shall not exceed 0.0052 grains per dry standard cubic foot and 0.530 pounds per hour.

- (3) TSP emissions from the No. 2 BOF charging aisle reladling and desulfurization baghouse (152) shall not exceed 0.011 grains per dry standard cubic foot and 28.30 pounds per hour.
- (4) TSP emissions from the No. 2 BOF No. 10 off-gas scrubber stack (147) shall not exceed 0.058 pounds per ton and 16.00 pounds per hour.
- (5) TSP emissions from the No. 2 BOF No. 20 off-gas scrubber stack (148) shall not exceed 0.058 pounds per ton and 16.00 pounds per hour.
- (6) TSP emissions from the No. 2 BOF secondary ventilation system scrubber (149) shall not exceed 0.015 grains per dry standard cubic foot and 12.00 pounds per hour.
- (7) TSP emissions from the No. 2 BOF ladle metallurgical station baghouse (154) shall not exceed 0.0052 grains per dry standard cubic foot and 2.00 pounds per hour.
- (8) TSP emissions from the No. 2 BOF caster fume collection baghouse (159) shall not exceed 0.0052 grains per dry standard cubic foot and 2.00 pounds per hour.
- (9) TSP emissions from the No. 2 BOF tundish dump baghouse (156) shall not exceed 0.0052 grains per dry standard cubic foot and 2.200 pounds per hour.
- (c) Pursuant to 326 IAC 6-1-10.1(d)(19) PM emissions from the BOF operations shall not exceed the following:
 - (1) TSP emissions from the No. 4 BOF shop reladling and desulfurization baghouse stack (26 and 27) shall not exceed 0.0052 grains per dry standard cubic foot and 8.26 pounds per hour
 - (2) TSP emissions from the No. 4 BOF shop off-gas scrubber stack (38) shall not exceed 0.187 pounds per ton and 100.00 pounds per hour.
 - (3) TSP emissions from the No. 4 BOF shop secondary ventilation system baghouse (37) shall not exceed 0.006 grains per dry standard cubic foot and 22.30 pounds per hour.
 - (4) TSP emissions from the No. 4 BOF shop vacuum degassing baghouse (33) shall not exceed 0.01 grains per dry standard cubic foot and 4.280 pounds per hour.

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

326 IAC 6-1-10.1 (Lake County PM10 emission requirements)

- (a) The No.7 Blast Furnace equipment and the upstream and downstream processes are listed with specific limitations in this section. Pursuant to 326 IAC 6-1-10.1(e), the following opacity limits shall be complied with and shall take precedence over those in 326 IAC 5-1-2 with which they conflict. The opacity for the No. 7 Blast Furnace operations (Casthouse Roof Monitor (171)) shall not exceed fifteen percent (15%), six (6) minute average.
- (b) Pursuant to 326 IAC 6-1-10.1(e), the following opacity limits shall be complied with and shall take precedence over those in 326 IAC 5-1-2 with which they conflict. The opacity

for the No.2 BOF operations shall be limited as follows:

- (1) The opacity for the No. 2 BOF truck and ladle hopper baghouse (150) shall not exceed five percent (5%), three (3) minute average.
 - (2) The opacity for the No. 2 BOF alloy and flux storage baghouse (151) shall not exceed five percent (5%), three (3) minute average.
 - (3) The opacity for the No. 2 BOF charging aisle reladling and desulfurization baghouse (152) shall not exceed five percent (5%), three (3) minute average.
 - (4) The opacity for the No. 2 BOF No. 10 off-gas scrubber stack (147) shall not exceed twenty percent (20%), six (6) minute average.
 - (5) The opacity for the No. 2 BOF No. 20 off-gas scrubber stack (148) shall not exceed twenty percent (20%), six (6) minute average.
 - (6) The opacity for the No. 2 BOF roof monitor (153) shall not exceed twenty percent (20%), three (3) minute average.
 - (7) The opacity for the No. 2 BOF secondary ventilation system scrubber (149) shall not exceed twenty percent (20%), six (6) minute average.
 - (8) The opacity for the No. 2 BOF ladle metallurgical station baghouse (154) shall not exceed five percent (5%), three (3) minute average.
 - (9) The opacity for the No. 2 BOF caster fume collection baghouse (159) shall not exceed five percent (5%), three (3) minute average.
 - (10) The opacity for the No. 2 BOF tundish dump baghouse (156) shall not exceed five percent (5%), three (3) minute average.
- (c) Pursuant to 326 IAC 6-1-10.1(e), the following opacity limits shall be complied with and shall take precedence over those in 326 IAC 5-1-2 with which they conflict. The opacity from the No.4 BOF operations shall be limited as follows:
- (1) The opacity for the No. 4 BOF shop, reladling and desulfurization baghouse (26 and 27) shall not exceed five percent (5%), three (3) minute average.
 - (2) The opacity for the No. 4 BOF shop roof monitor (29) shall not exceed twenty percent (20%), three (3) minute average.
 - (3) The opacity for the No. 4 BOF shop off-gas scrubber (38) shall not exceed twenty percent (20%), six (6) minute average.
 - (4) The opacity for the No. 4 BOF shop secondary ventilation system baghouse (37) shall not exceed five percent (5%), three (3) minute average.
 - (5) The opacity for the No. 4 BOF shop vacuum degassing material handling baghouse (33) shall not exceed five percent (5%), three (3) minute average.

326 IAC 6-1-11.1 (Lake County Fugitive Particulate Matter Control Requirements)

The No.7 Blast Furnace equipment and the upstream and downstream processes are listed with specific limitations in this section. Pursuant to 326 IAC 6-1-11.1 (Lake County Fugitive Particulate

Matter Control Requirements), the particulate matter emissions from source wide activities shall meet the following requirements:

- (a) The average instantaneous opacity of fugitive particulate emissions from a paved road shall not exceed ten percent (10%).
- (b) The average instantaneous opacity of fugitive particulate emissions from an unpaved road shall not exceed ten percent (10%).
- (c) The average instantaneous opacity of fugitive particulate emissions from batch transfer shall not exceed ten percent (10%).
- (d) The opacity of fugitive particulate emissions from slag and kish handling when transferring from pots and trucks shall not exceed twenty percent (20%) on a six (6) minute average.
- (e) The opacity of fugitive particulate emissions from continuous transfer of material onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average.
- (f) The opacity of fugitive particulate emissions from storage piles shall not exceed ten percent (10%) on a six (6) minute average. These limitations may not apply during periods when application of fugitive particulate control measures are either ineffective or unreasonable due to sustained very high wind speeds. During such periods, the company must continue to implement all reasonable fugitive particulate control measures and maintain records documenting the application of measures and the basis for a claim that meeting opacity limitation was not reasonable given prevailing wind conditions.
- (g) There shall be a zero (0) percent frequency of visible emission observations of a material during the in-plant transportation of material by truck or rail at any time.
- (h) The opacity of fugitive particulate emissions from the inplant transportation of material by front end loaders and skip hoists shall not exceed ten percent (10%).
- (i) There shall be a zero (0) percent frequency of visible emission observations from a building enclosing all or part of the material processing equipment, except from a vent in the building.
- (j) The PM₁₀ emissions from building vents shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.
- (k) The opacity of particulate emissions from dust handling equipment shall not exceed ten percent (10%).
- (l) Any facility or operation not specified in 326 IAC 6-1-11.1(d) shall meet a twenty percent (20%), three (3) minute average opacity standard.
- (m) PM₁₀ emissions from each material processing stack shall not exceed 0.022 grains per dry standard cubic foot and ten percent (10%) opacity.
- (n) Fugitive particulate matter from the material processing facilities shall not exceed ten percent (10%) opacity.

The Permittee shall achieve these limits by controlling fugitive particulate matter emissions according to the Fugitive Dust Control Plan. The Fugitive Dust Control Plan shall be updated to include any new emissions units or control strategies before the startup of equipment after this

modification.

326 IAC 6-1-10.1(k)(5)(F) (No.7 Blast Furnace Specific Control Requirements)

The No.7 Blast Furnace equipment and the upstream and downstream processes are listed with specific limitations in this section. Pursuant to 326 IAC 6-1-10.1(k)(5)(F), tapping emissions from the No. 7 blast furnace casthouse shall be controlled by a hood vented to a baghouse. Canopy hoods shall be installed above each of the four (4) furnace tap holes. The hoods shall be ducted to a three hundred seventy thousand (370,000) actual cubic feet per minute minimum design flow rate baghouse. Each hood shall be located just above the casthouse crane and extend via vertical sheeting to the casthouse roof. The system shall provide a minimum of one hundred eighty-five thousand (185,000) actual cubic feet per minute of air flow (fume capture) to each hood, when the corresponding tap hole is being drilled or plugged.

326 IAC 6-1-10.1 (Continuous Compliance Plan)

The No.7 Blast Furnace equipment and the upstream and downstream processes are listed with specific limitations in this section. Pursuant to 326 IAC 6-1-10.1(l), the Permittee shall submit to IDEM OAQ and maintain at the source a copy of the Continuous Compliance Plan (CCP).

- (a) Pursuant to 326 IAC 6-1-10.1(l), a CCP shall also be submitted by any source in Lake County for facilities that perform manufacturing operations in a building or structure such that the total uncontrolled PM₁₀ emissions from all such operations amount to ten (10) tons per year or more and that could potentially escape into the atmosphere through roof vents and other openings. The uncontrolled PM₁₀ emissions shall be estimated with AP-42, "Compilation of Air Pollutant Emission Factors, Volume I, (Stationary Point and Area Sources)", 4th Edition, September 1985, (and succeeding amendments) emission factors or other documentable emission factors acceptable to the commissioner.
- (b) Pursuant to 326 IAC 6-1-10.1(p) the Permittee shall include the following information or applicable procedures, or commit to the following actions:
 - (A) Pursuant to 326 IAC 6-1-10.1(p)(3)(C), the plans for blast furnaces shall include the following:
 - (1) Describe procedures, including frequency, for inspection of the following elements of a capture system:
 - (i) Pressure sensors.
 - (ii) Dampers.
 - (iii) Damper switches.
 - (iv) Hood and ductwork for the presence of holes.Maintain records of the maintenance and any repairs made.
 - (2) Describe procedures used to minimize dirt and debris accumulation on the facility floor.
 - (3) Describe any fume suppression system, including the process or emission point being controlled, the location, and the inert gas or steam application rate and the monitoring method. Fume suppression system means the equipment comprising any system used to inhibit the generation of emissions from steelmaking facilities with an inert gas, flame, or steam blanket applied to the surface of molten iron or steel.
 - (4) Describe the record keeping for the following elements of the iron production cycle:
 - (i) Time of hole drilling.
 - (ii) Time of tapping.
 - (iii) Time of hole plugging.
 - (5) Describe the blast furnace inspection, repair, and maintenance schedule for the following elements:

- (i) Tuyres.
 - (ii) Bleeder valves.
 - (iii) Large and small bells.
 - (iv) Uptakes and downcomers (to minimize backdrafting).
 - (v) Standby devices.
 - (6) Describe the procedures used to inspect and operate the blast furnace gas cleaning equipment, such as dust catchers and scrubbing equipment to assure operation within design parameters.
- (B) Pursuant to 326 IAC 6-1-10.1(p)(3)(A), the plans for the Basic oxygen process (BOP, BOF, QBOP) shall include the following:
- (1) Describe the capture and control devices used to control particulate emissions from each phase of the steel production cycle, including the furnace, hot metal transfer, hot metal desulfurization, and kish removal. The description shall include the locations within the facility of these operations in relation to capture hoods, control devices, roof vents, and other building openings.
 - (2) Describe any fume suppression system, including the process or emission point being controlled, the location within the facility, the inert gas or steam application rate, and the monitoring method. As used in this item, "fume suppression system" means the equipment comprising any system used to inhibit the generation of emissions from steelmaking facilities with an inert gas, flame, or steam blanket applied to the surface of molten iron or steel.
 - (3) Describe the procedure for recording furnace charging and tapping time, amount of throughput, and amount of steel produced.
 - (4) Describe the off-gas system leak detection and repair record keeping practices.
 - (5) Describe the procedures used to minimize dirt and debris accumulation on the facility floor.
 - (6) Describe practices that reduce PM₁₀ and TSP emissions escaping the primary or secondary hood during scrap charging and hot metal charging tapping steel and dumping slag.
 - (7) At least monthly, inspect the operational status of the following elements of the capture system:
 - (i) Pressure sensors.
 - (ii) Dampers.
 - (iii) Damper switches.
 - (iv) The hood and ductwork for the presence of holes.
 - (v) Ductwork for accumulation of dust.
 - (vi) Fans for erosion.

Maintain records of the inspections and any repairs.

- (C) Pursuant to 326 IAC 6-1-10.1(p)(1), the plans for the Lime Plant shall include the following:
Monitor opacity at the kilns and control system vents during normal operation of the kiln with a continuous emission monitor or through self-monitoring of opacity. 40 CFR 60, Appendix A, Method 9 should be used to determine opacity if the facility is controlled by a positive pressure fabric filter.

- (D) Pursuant to 326 IAC 6-1-10.1(p)(3)(F), the plans for a facility Waste disposal and recycling practices of iron and steel scrap and other metallic scrap shall include the following:
- (1) Provide a description of the routine activities involving disposal and

reclamation of iron and steel. The visible emissions from such activities shall not exceed twenty percent (20%) opacity on a three (3) minute average as measured by 40 CFR 60, Appendix A, Method 9. The opacity shall be determined as an average of twelve (12) consecutive observations recorded at fifteen (15) second intervals.

- (2) Maintenance of process vessels, for example, pugh ladles, shall be performed in enclosed structures. The visible emissions from such structures shall not exceed twenty percent (20%) opacity on a three (3) minute average as measured by 40 CFR 60, Appendix A, Method 9. The opacity shall be determined as an average of twelve (12) consecutive observations recorded at fifteen (15) second intervals.
- (3) Emissions from all steel scrap burning or cutting and oxygen lancing operations shall not exceed twenty percent (20%) opacity on a three (3) minute average as measured by 40 CFR 60, Appendix A, Method 9. The opacity shall be determined as an average of twelve (12) consecutive observations recorded at fifteen (15) second intervals.

(E) Pursuant to 326 IAC 6-1-10.1(p)(4), the plans for the Fuel combustion boilers shall include the following:

- (1) The requirements of this subdivision shall not relax the fuel monitoring and reporting requirements of 326 IAC 7-1.1-1 for the sources this section applies to.
- (2) Affected sources shall maintain records of the following information:
 - (i) Operational status of each facility for each day.
 - (ii) The daily measurements for each facility of the type of fuel used, amount of each type of fuel used, and heat content of each type of fuel used.
 - (iii) The TSP or PM₁₀ emission factors for each type of fuel to be used as estimated by the AP-42 or stack test method.
 - (iv) The method used to monitor the fuel amount and heat content in addition to the frequency.
 - (v) The control efficiency of the particulate control device and the method of determination.
 - (vi) Average daily PM₁₀ emissions (or TSP if applicable) for each facility, expressed in pounds per million British thermal units.
- (3) The following guidance may be used to estimate emissions:
 - (i) For heat content, AP-42, Volume 1, Appendix A, Table A-3, "Typical Parameters of Various Fuels" Fifth Edition, January 1995, Supplements A through G, December 2000.
 - (ii) For emission factors (TSP or PM₁₀), EPA 450/4-90-003, "AIRS Facility Subsystem Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants".
 - (iii) For control equipment efficiency, manufacturer's warranty or as determined by source.
 - (iv) Sources may substitute other site-specific values for the values as indicated if they can be shown to be acceptable to the department.

(F) Pursuant to 326 IAC 6-1-10.1(q), the plans for the particulate matter control equipment shall provide that the following control equipment related information will be maintained at the source's property and will be available for inspection by department personnel:

- (1) Startup, shutdown, and emergency shutdown procedures.
- (2) Sources shall notify the department fifteen (15) days in advance of startup

- of either new control equipment or control equipment to which major modifications have been made.
- (3) Manufacturer's recommended inspection procedures, preventive and corrective maintenance procedures, and safety devices and procedures, such as sensors, alarm systems, and bypass systems. If manufacturer's recommendations are not available, procedures shall be developed by the source.
 - (4) Contents of the operator's training program and the frequency with which the training is held.
 - (5) A list of spare parts available at the facility.
 - (6) A list of control equipment safety devices, for example, high temperature sensors and alarm systems, exhaust gas stream bypass system, or safety interlock system.
 - (7) Monitoring and recording devices and/or instruments to monitor and record control equipment operating parameters specified in subsection (n)(4).
- (G) Pursuant to 326 IAC 6-1-10.1(r)(1), the plans for a facility controlled with a baghouse shall include the recording, inspection, and maintenance procedures to be consistent with the requirements of subsection 326 IAC 6-1-10.1(m), such as the following:
- (1) Operating parameters, such as the following:
 - (i) Pressure drop across the baghouse.
 - (ii) Gas flow rate at baghouse inlet.
 - (iii) Gas temperatures at inlet.

A CCP shall identify the monitors and instrumentation, and their location, accuracy, precision, and calibration frequency. A CCP shall also include a description of any visible emission evaluation program.
 - (2) Baghouse cleaning system. A complete description of the cleaning system, including such information as intensity, duration, frequency, and method of activation.
 - (3) Baghouse inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule must be approved by the department. Inspections shall include the following:
 - (i) Daily inspections shall include the following:
 - (AA) Pressure drop.
 - (BB) Fan amperage.
 - (CC) Cleaning cycle.
 - (DD) Compressed air on pulse jet baghouses for values outside of the operating ranges.
 - (EE) Dust discharge equipment for proper operation.
 - (FF) General check for abnormal audible and visual conditions.
 - (ii) Weekly inspections of the following:
 - (AA) Moving parts on discharge system.
 - (BB) Bypass and isolation damper operation.
 - (CC) Bag tension.
 - (DD) Compressed air lines, oilers, and filters.
 - (EE) Manometer lines.
 - (FF) Temperature indicating equipment.
 - (GG) Bag cleaning sequence.

- (HH) Drive components on fans.
 - (iii) Monthly inspections of the following:
 - (AA) Bag seating condition.
 - (BB) Moving parts on shaker baghouses.
 - (CC) Fan corrosion and blade wear.
 - (DD) Hoses and clamps.
 - (EE) Bags for leaks and holes.
 - (FF) Bag housing for corrosion.
 - (iv) Quarterly inspections of the following:
 - (AA) Bags.
 - (BB) Ducts for dust build-up.
 - (CC) Damper valves for proper setting.
 - (DD) Door gaskets.
 - (EE) Baffle plate for wear.
 - (v) Annual inspection of the following:
 - (AA) Welds and bolts.
 - (BB) Hoppers for wear.
 - (CC) Cleaning parts for wear.
- (H) Pursuant to 326 IAC 6-1-10.1(r)(3), the plans for a facility controlled by a scrubber shall include the recording, inspection, and maintenance procedures to be consistent with the objectives of subsection 326 IAC 6-1-10.1(m), such as the following:
 - (1) Operating parameters, such as the following:
 - (i) Gas flow rate.
 - (ii) Inlet and outlet temperatures of gas to and from scrubber.
 - (iii) Liquid flow rate to scrubber.
 - (iv) Pressure drop across scrubber.
 - (v) pH of liquid to scrubber.
 - (vi) Fan and pump currents.A CCP shall specify the location, accuracy, precision, and calibration frequency of monitors and instrumentation.
 - (2) Scrubber inspection and maintenance schedule. The inspection schedule logs or records shall be available for inspection by the department for up to one (1) year after the date of inspection. The inspection shall include the activities and frequency of the activities. A source may request an alternative schedule based on manufacturer's recommendations or alternatives documented by the company. The revised schedule shall be approved by the department. Inspections shall include the following:
 - (i) Daily inspection of the following:
 - (AA) Scrubbing liquid flow rates to scrubber.
 - (BB) Pressure drop across scrubber.
 - (CC) Fan and pump amperages for values outside the operating range.Corrective actions taken shall be recorded.
 - (ii) Monthly inspection of the following:
 - (AA) Seals for abrasion.
 - (BB) Corrosion and leaks.
 - (CC) Fans for abrasion, corrosion, and solids build-up.
 - (DD) Pipes for abrasion, corrosion, and plugging.
 - (EE) Throat wear in the venturi scrubber.
 - (FF) Sensors, alarm systems, and bypass devices for proper operation.
 - (GG) Entrainment separator for blockage.

(HH) Spray nozzles for plugging or excessive wear.

326 IAC 7-4-1.1(Lake County sulfur dioxide emission limitations)

- (a) The No.7 Blast Furnace is a listed facility under 326 IAC 7-4-1.1. Therefore, pursuant to 326 IAC 7-4-1.1(c)(10)(C), the SO₂ emissions from the No. 7 blast furnace stove stack (3 units) (170) shall not exceed 0.146 pounds per MMBtu.
- (b) Pursuant to 326 IAC 7-4-1.1(c)(10)(C), the allowable sulfur dioxide (SO₂) emission rate from the No. 1 and No. 2 Kiln baghouse (45) shall not exceed 0.46 lb/MMBtu.
- (c) SO₂ emissions from No. 5 Boiler house 501-503, shall not exceed 0.104 lbs/MMBtu.

326 IAC 9-1-2(a)(2) (Carbon Monoxide)

- (a) The No.7 Blast Furnace commenced operation after March 21, 1972 and has process weight greater than 10 tons per hour. Therefore, pursuant to 326 IAC 9-1-2(a)(2), No.7 Blast Furnace waste gas stream shall be burned in one (1) of the following:
 - (A) Boiler.
 - (B) Direct-flame afterburner.
 - (C) Recuperative incinerator.

In instances where carbon monoxide destruction is not required, carbon monoxide emissions shall be released at such elevation that the maximum ground level concentration from a single source shall not exceed twenty percent (20%) of the maximum one (1) hour Indiana ambient air quality value for carbon monoxide.

As explained in the BACT section, the waste gases from the No.7 Blast Furnace are combusted in a three velocity nozzle flare. This complies with the requirements of this rule.

- (b) The No.2 Basic Oxygen Furnace (BOF) commenced operation after March 21, 1972 and has process weight greater than 10 tons per hour. Therefore, pursuant to 326 IAC 9-1-2(a)(2), No.2 BOF waste gas stream shall be burned in one (1) of the following:
 - (A) Boiler.
 - (B) Direct-flame afterburner.
 - (C) Recuperative incinerator.

In instances where carbon monoxide destruction is not required, carbon monoxide emissions shall be released at such elevation that the maximum ground level concentration from a single source shall not exceed twenty percent (20%) of the maximum one (1) hour Indiana ambient air quality value for carbon monoxide.

The waste gases from the No.2 BOF are combusted in a flare. This complies with the requirements of this rule.

- (c) The No.4 Basic Oxygen Furnace (BOF) commenced operation before March 21, 1972. Therefore, pursuant to 326 IAC 9-1-1(a) the No.4 BOF is not subject to the requirements of this rule.

Testing Requirements

The following table shows the testing requirements for this modification:

Time Frame	Emissions Point	Pollutant
60 days of achieving stable production after reline project completion, no later than 180 days from the start of operation after the completion of reline project at No.7 Blast Furnace	stack 170 for the Stoves, stack 134 for the No.5 Boiler House, stacks 166 and 167 the West and East baghouses for the No.7 Blast Furnace casthouse.	CO
60 days of achieving stable production after the start of four stove operation, no later than 180 days after the start of four stove operation at the No.7 Blast Furnace	stack 170 for the Stoves, stack 134 for the No.5 Boiler House, stacks 166 and 167 the West and East baghouses for the No.7 Blast Furnace casthouse.	CO
60 days of achieving stable production after reline project completion, no later than 180 days from the start of operation after the completion of reline project at No.7 Blast Furnace	Either 147 or 148 stack for 10 BOF or 20 BOF, 149 stack for Secondary Ventilation System at No.2 BOF	Pb
60 days of achieving stable production after reline project completion, no later than 180 days from the start of operation after the completion of reline project at No.7 Blast Furnace	38 stack for scrubber controlling 4 BOF, 37 stack for Secondary Ventilation System at No.4 BOF,	Pb

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure the source can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

This No.7 Blast Furnace modification project does impact equipment controlled by control devices such as baghouses. The after control emissions from these emission points is very small and the operation of the control device is otherwise covered under the Continuous Compliance Plan required for this Source. Therefore, no additional monitoring is required for following equipment:

1. No.7 Blast Furnace:

- (a) Coke screening station controlled by baghouse exhausting to stack 169
 - (b) Stockhouse coke handling controlled by baghouse exhausting to stack 172
 - (c) Stockhouse pellet handling controlled by baghouse exhausting to stack 168
 - (d) No.7 Blast Furnace stoves exhausting to stack 170
 - (e) Slag pit operation
 - (f) Slag granulator and pelletizer operation
 - (g) Gas Cleaning System
 - (h) Roof Monitor 171
2. No.5 Boiler House:
No.5 Boiler House exhausting to stack 134, to the extent increases in the usage of blast furnace gas from No.7 Blast Furnace at this unit.
3. Pulverized Coal Injection plant:
- (a) Coal transfer A controlled by baghouse exhausting to stack 185
 - (b) Coal storage C controlled by baghouse exhausting to stack 186
 - (c) Coal storage F controlled by baghouse exhausting to stack 189
 - (d) Coal storage G controlled by baghouse exhausting to stack 190
 - (e) Coal unloading system exhausting to stack 192
4. No.1 Lime Plant:
- (a) Lime plant fugitive control micro-pulse controlled by baghouse exhausting to stack 46
 - (b) Lime plant truck loadout controlled by baghouse exhausting to stack 48
5. No.2 BOF shop:
- (a) Ladle metallurgy facility station controlled by baghouse exhausting to stack 154
 - (b) Truck and ladle hopper controlled by baghouse exhausting to stack 150
 - (c) Flux storage batch controlled by baghouse exhausting to stack 151
 - (d) Gas Cleaning System
 - (e) No.2 BOF Roof Monitor 153
 - (f) No.2 BOF Caster Roof Monitor 158
6. No.4 BOF shop:
- (a) RHOB condensers stack exhausting to stack 32
 - (b) RHOB material handling stack controlled by baghouse exhausting to stack 33
 - (c) Gas Cleaning System 4 BOF
 - (d) Gas Cleaning System 4 BOF RHOB
 - (e) Furnace additive bin loading exhausting to stack 28
 - (f) Torch cut exhausting to stack 31
 - (g) Furnace additive hopper house exhausting to stack 35
 - (h) No.4 BOF Roof Monitor 29

The following table shows the additional applicable compliance monitoring requirements:

No.7 Blast Furnace			
Casthouse west baghouse (166)	visible emissions notations	1.1-2 kPa pressure drop	quarterly baghouse inspections
Casthouse east baghouse (167)	visible emissions notations	0.4-1.3 kPa pressure drop	quarterly baghouse inspections
Flare (195)	monitor the presence of flame at the flare tip		
Pulverized Coal Injection System			
Coal pulverizer D baghouse (187)	visible emissions notations	0.5-1.5 kPa pressure drop	quarterly baghouse inspections
Coal pulverizer E baghouse (188)	visible emissions notations	0.5-1.5 kPa pressure drop	quarterly baghouse inspections
No.1 Lime Plant			
kiln 1 baghouse (45)	visible emissions notations	2-9 inches of water pressure drop	quarterly baghouse inspections
kiln 2 baghouse (49)	visible emissions notations	2-9 inches of water pressure drop	quarterly baghouse inspections
No.2 Basic Oxygen Furnace Shop			
No.2 BOF charge aisle reladling and desulfurization (hot metal station) baghouse (152)	visible emissions notations	3-10 inches of water pressure drop	quarterly baghouse inspections
10 BOF scrubber (147)	visible emissions notations	10-15 kPa pressure drop	80 liter per second flow rate
20 BOF scrubber (148)	visible emissions notations	10-15 kPa pressure drop	80 liter per second flow rate
No.2 BOF secondary ventilation scrubber (149)	visible emissions notations	25-45 inches of water pressure drop	1250 gallon per min flow rate
Flares 147 148	monitor the presence of flame at the flare tip		
No.4 Basic Oxygen Furnace Shop			
4 BOF shop off-gas scrubber (38)	visible emissions notations	25-40 inches of water pressure drop	600 gallon per min flow rate
4 BOF shop secondary ventilation system baghouse (37)	visible emissions notations	4.5-10 inches of water pressure drop	quarterly baghouse inspections
4 BOF shop reladling and desulfurization (Hot Metal Station) baghouse north (26)	visible emissions notations	4.5-10 inches of water pressure drop	quarterly baghouse inspections
4 BOF reladling and desulfurization (Hot Metal Station) baghouse south (27)	visible emissions notations	6-14 inches of water pressure drop	quarterly baghouse inspections

Conclusion

The construction and operation of this proposed modification shall be subject to the conditions of the attached Part 70 Significant Source Modification No. 089-16966-00316.

Appendix A: Emission Calculations

Company Name: Ispat Inland, Inc.
Address City IN Zip: 3210 Watling Street, East Chicago, IN 46312
SSM: 089-16966
Plt ID: 089-00316
Reviewer: GS
Date: 19-May-03

Addition of fourth stove at No.7 Blast Furnace
Contemporaneous Emissions Changes

Increases Attendant to Project		Criteria Air Pollutants Emission Rates (tons/yr)					
Facility		PM	PM10	SO2	CO	NOx	Pb
Blast Furnace No. 7		31.9408	49.8600	156.2942	316.1476	149.1858	0.0017
PCI		1.1054	0.8997	0.0000	0.0000	0.0000	0.0000
Lime Plant		1.5212	1.5332	0.0439	65.7183	7.6134	0.0019
No. 2 BOF		57.1850	51.7293	45.8984	5316.1817	41.7489	0.0985
No. 4 BOF		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
No. 5 Boiler House		9.5628	63.3851	206.4108	193.0187	323.7578	0.0009
Fugitive Emissions		28.8196	6.0203				
Shutdown of No. 2A Blooming Mill/21-Inch Bar Mill		(5.0224)	(4.9861)	(0.3698)	(52.0170)	(116.3382)	(0.0533)
Project Emissions		125.11	168.44	408.28	5839.05	405.97	0.05

Contemporaneous and Creditable Changes			Criteria Air Pollutants Emission Rates (tons/yr)					
Facility	Shutdown/Modification	Startup Year	PM	PM10	SO2	CO	NOx	Pb
No. 4 AC Station	1999		(605.80)	(605.80)	(1,355.50)	(202.50)	(3,284.00)	(0.36)
80-Inch No. 4 WBF Project	2001		(0.14)	(0.14)	(0.01)	1.08	(51.74)	(0.10)
EAF Vacuum Degasser		2001	1.40	1.40	0.10	25.10	18.20	1.00
No. 6 CGL		2001	6.10	6.10	0.50	5.43		
Slag pits (curtailment)	2002		(402.98)	(197.00)	(287.04)	(42.71)	(12.32)	(1.16)
Slag Granulation/Pelletization		2002	307.53	144.96	50.66	32.93	5.07	0.51
EAF DRI		2002	8.68	5.84				
Contemporaneous and Creditable Emissions Changes			(685.20)	(644.64)	(1,591.29)	(180.67)	(3,324.79)	(0.36)
Net Emissions Changes			(560.09)	(476.20)	(1,183.02)	5,658.38	(2,918.83)	(0.31)

*VOC emissions number are for information purpose only. This is a 326 IAC 2-3 pollutant and subject to de-minimis requirements

Project	Description
No. 4 AC Station	Shutdown in April 1999
80-Inch No. 4 WBF Project	Shutdown of two pusher furnaces and installation of No. 4 Walking Beam Furnace.
EAF Vacuum Degasser	Construction permit issued in March 1999.
No. 6 Continuous Coating Line	Construction permit issued in May 1999.
Slag Granulation/Pelletization	Installation reduced emissions by cooling and processing slag currently handled in the slag pits.
EAF Direct Reduced Iron System	Installation of system to handle Direct Reduced Iron at No. 1 EAF.

**Addition of fourth stove at No.7 Blast Furnace
Emissions Summary**

Emission Unit	Emission Location	Changes in Annual Emission Rates of Criteria Air Pollutants (tons/yr)						
		PM	PM10	SO2	CO	NOx	VOC	Pb
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	3.18	4.38	34.27	108.17	4.79	1.78	0.000462413
	Casthouse Baghouse No. 2 (west)	1.62	2.79	34.27	108.17	4.79	1.78	0.000243375
	Casthouse Fugitives	11.59	8.11	3.86	4.64	0.46	0.35	0.000417215
	Coke Transfer Station	0.01	0.01	0.00	0.00	0.00	0.00	0
	Stockhouse Coke Baghouse	0.05	0.04	0.00	0.00	0.00	0.00	0
	Stockhouse Pellet Baghouse	0.32	0.32	0.00	0.00	0.00	0.00	0
	Slag Pit Operations	11.40	10.59	13.31	7.09	1.15	0.11	0.000102991
	Stoves (NG)	0.51	2.03	0.18	22.44	27.79	1.47	0.000122902
	Stoves (BFG)	3.26	21.61	70.43	65.64	110.20	0.00	0.000319585
	Blast Furnace No. 7 Total	31.94	49.86	156.29	316.15	149.19	5.49	0.00
PCI	Coal Transfer Baghouse A	0.08	0.08	0.00	0.00	0.00	0.00	0
	Coal Storage Baghouse C	0.11	0.11	0.00	0.00	0.00	0.00	0
	Coal Pulverizer Baghouse D	0.14	0.14	0.00	0.00	0.00	0.00	0
	Coal Pulverizer Baghouse E	0.14	0.14	0.00	0.00	0.00	0.00	0
	Coal Storage Baghouse F	0.11	0.11	0.00	0.00	0.00	0.00	0
	Coal Storage Baghouse G	0.11	0.11	0.00	0.00	0.00	0.00	0
	Coal Unloading	0.41	0.21	0.00	0.00	0.00	0.00	0
	PCI Total	1.11	0.90	0.00	0.00	0.00	0.00	0.00
	Silo Bagothouses	0.55	0.55	0.00	0.00	0.00	0.00	0.00
	No. 1 Kiln Baghouse	0.36	0.40	0.00	29.78	0.00	0.00	0.00
Lime Plant	No. 2 Kiln Baghouse	0.36	0.40	0.00	29.78	0.00	0.00	0.00
	Micro-Pulse Baghouse (2)	0.10	0.10	0.00	0.00	0.00	0.00	0.00
	Truck Loadout Baghouse	0.15	0.07	0.00	0.00	0.00	0.00	0.00
	No. 1 Kiln (NG)	0.00	0.00	0.02	3.07	3.81	0.20	1.347E-07
	No. 2 Kiln (NG)	0.00	0.00	0.02	3.07	3.81	0.20	1.347E-07
	Lime Plant Total	1.52	1.53	0.04	65.72	7.61	0.40	0.00
	10 Furnace Stack	11.01	10.90	13.52	2,617.73	15.45	0.19	0.01
	20 Furnace Stack	11.01	10.90	13.52	2,617.73	15.45	0.19	0.01
	10 Furnace Stack (NG)	0.01	0.03	0.00	0.34	0.40	0.02	1.840E-06
	20 Furnace Stack (NG)	0.01	0.03	0.00	0.34	0.40	0.02	1.840E-06
No. 2 BOF	Caster Roof Monitor	1.35	0.78	0.00	0.00	0.00	0.77	0.00
	Ladle Metallurgy Station	1.79	2.44	9.66	16.23	1.16	0.00	0.00
	Secondary, Ventilation System Scrubber	10.26	10.87	5.41	53.70	7.73	1.93	0.06
	Charging Aisle and Reloading Desulfurization Baghouse	9.89	8.31	3.63	0.00	0.93	0.39	0.00
	Truck and Ladle Hopper Baghouse	0.16	0.16	0.00	0.00	0.00	0.00	0.00
	Flux Storage and Batch Baghouse	0.11	0.11	0.00	0.00	0.00	0.00	0.00
	Roof Monitor	11.59	7.21	0.15	1.62	0.23	0.06	0.01
	Gas Cleaning System	0.00	0.00	0.00	8.50	0.00	0.00	0.00
	No. 2 BOF Total	57.19	51.73	45.90	5,316.18	41.75	3.58	0.10
	Scrubber	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 BOF	Secondary Vent System Baghouse	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Reloading and Desulfurization Baghouse North	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Reloading and Desulfurization Baghouse South	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Roof Monitor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Furnace Additives Bin Loading	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Torch Cut	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RHOB Condensers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RHOB Material Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Furnace Additive Hopper House	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Gas Cleaning system	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 5 Boiler House	Gas Cleaning system - RHOB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	No. 4 BOF Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Boiler House (NG)	0.01	0.06	0.00	0.65	0.81	0.04	3.580E-06
	Boiler House (BFG)	9.55	63.33	206.41	192.36	322.95	0.00	9.366E-04
	Boiler House (Mixed Gas)	0.00	0.00	0.00	0.00	0.00	0.00	0.000E+00
	No. 5 Boiler House Total	9.56	63.39	206.41	193.02	323.76	0.04	0.00
	Total	28.82	6.02					
	Fugitive from Roads	28.82	6.02					
Shutdown 2A Blooming mill/21" Bar Mill	21-Inch Bar Mill Facility	(4.71)	(4.69)	(0.37)	(51.82)	(116.09)	(13.33)	(0.0003)
	No. 2A Blooming Mill Hot Rolling	(0.31)	(0.29)		(0.20)	(0.25)	(0.01)	
	No. 2A Blooming Mill Scaffolding						(21.10)	(0.0530)
	2A Blooming mill/21" Bar mill	(5.02)	(4.99)	(0.37)	(52.02)	(116.34)	(34.44)	(0.0533)

Baseline Emissions October 1998-September 2000

#7 Blast Furnace production records

(using the baseline production rate for the 2 year period from July 1996 to June 1998 - see the note in TSD)

No.	Month and Year	Production in Net Tons	Annual average tons of hot metal during baseline period	3,644,380
1	Jul-96	249,717	Annual tons of hot metal production increase	772,620
2	Aug-96	304,338	Annual tons of hot metal production rate	4,417,000
3	Sep-96	307,787	Annual average hours of casthouse operation during baseline	8,471
4	Oct-96	298,414	Potential annual hours of casthouse operation after the modification	8,760
5	Nov-96	319,178	Increase in hours of operation due to change	289
6	Dec-96	320,377		
7	Jan-97	303,467		
8	Feb-97	291,039	Ispat Numbers	
9	Mar-97	313,866	Monthly	304,483
10	Apr-97	283,359	Annual	3,653,792
11	May-97	295,555	Annual Production increase	763,208
12	Jun-97	291,087		
13	Jul-97	307,305		
14	Aug-97	329,510		
15	Sep-97	320,473		
16	Oct-97	308,425		
17	Nov-97	307,188		
18	Dec-97	314,964		
19	Jan-98	304,691		
20	Feb-98	268,281		
21	Mar-98	305,386		
22	Apr-98	299,054		
23	May-98	322,326		
24	Jun-98	322,973		
Monthly		303,698		

Production/throughput changes at various emissions units due to
 modification of the #7 Blast Furnace

Emission Unit	Annual Production/Throughput Changes	Units
No. 7 Blast Furnace	772,620 214,788 37,665 9,583 534 274,178 1,295,275 112,132 289	tons of hot metal produced tons of slag generated million standard cubic feet of blast furnace gas generated million standard cubic feet of blast furnace gas consumed at stoves million standard cubic feet of natural gas consumed at stoves tons of pulverized coal consumed tons of pellets consumed tons of coke usage increase Increase in hours of cast house operation
Nos. 2 and 4 BOF Shops	772,620 61,810 29,785	tons of steel slabs produced tons of slag generated tons of lime consumed
10 Furnace stack ignitor (NG)	8	millions standard cubic feet of natural gas consumed
20 Furnace stack ignitor (NG)	8	millions standard cubic feet of natural gas consumed
Pulverized Coal Injection	274,178	tons of PCI produced
Self Fluxing Pellets Handling	1,295,275	tons of pellets received and handled
Lime Plant	29,785 146	net tons of lime produced million standard cubic feet of gas consumed at kiln no.1 and 2
No. 5 Boiler House	28,082 16	million standard cubic feet of blast furnace gas consumed millions standard cubic feet of natural gas consumed

Increase in molten iron production (tons/year) of:	772,620
Increase in hours of operation of cast house (hours/year) of:	289

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	289	hours	22.00	lb/hr	99.00%	3.18		SIP Limit
	Casthouse Baghouse No. 2 (west)	289	hours	11.22	lb/hr	99.00%	1.62		SIP Limit
	Casthouse Fugitives	772,620	hot metal	0.60	lb/ton	95.00%	11.59	2.65	AIRS
	Coke Transfer Station	112,132	coke	0.20	lb/ton	99.90%	0.01	0.00	AIRS
	Stockhouse Coke Baghouse	112,132	coke	0.09	lb/ton	99.00%	0.05	0.01	AIRS
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.10	lb/ton	99.50%	0.32	0.07	1996 data. 225 tons dust per 4,876,242 tons of pellets.
	Slag Pit Operations	214,788	slag	0.106	lb/ton		11.40	2.60	Lafarge Slag Operations Factor using 95% ganulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.56	lb/ton	99.90%	0.08	0.02	Inland emission factor
	Coal Storage Baghouse C	274,178	coal	0.78	lb/ton	99.90%	0.11	0.02	Inland emission factor
	Coal Pulverizer Baghouse D	289	hours	0.99	lb/hr	99.90%	0.14		SIP Limit
	Coal Pulverizer Baghouse E	289	hours	0.99	lb/hr	99.90%	0.14		SIP Limit
	Coal Storage Baghouse F	274,178	coal	0.818	lb/ton	99.90%	0.11	0.03	Inland emission factor
	Coal Storage Baghouse G	274,178	coal	0.818	lb/ton	99.90%	0.11	0.03	Inland emission factor
	Coal Unloading	274,178	coal	0.020	lb/ton	85.00%	0.41	0.09	AIRS
Lime Plant	Silo Baghouses	200.0	hours	5.53	lb/hr	99.00%	0.55		SIP Limit
	No. 1 Kiln Baghouse	200.0	hours	3.575	lb/hr	99.90%	0.36		SIP Limit
	No. 2 Kiln Baghouse	200.0	hours	3.575	lb/hr	99.90%	0.36		SIP Limit
	Micro-Pulse Baghouse (2)	29,785	lime	0.70	lb/ton	99.00%	0.10	0.02	Based on 0.01 gr/dscf, 3000 acfm and 150 deg F
	Truck Loadout Baghouse	29,785	lime	5.00	lb/ton	99.80%	0.15	0.03	AP-42
No. 2 BOF	10 Furnace Stack	386,310	molten steel	28.50	lb/ton	99.80%	11.01	2.51	AIRS
	20 Furnace Stack	386,310	molten steel	28.50	lb/ton	99.80%	11.01	2.51	AIRS
	Caster Roof Monitor	772,620	slabs	0.0035	lb/ton		1.35	0.31	Inland emission factor
	Ladle Metallurgy Station	772,620	molten steel	0.6636	lb/ton	99.30%	1.79	0.41	1996 data. 750 tons dust per 2,260,374 tons steel processed.
	Secondary, Ventilation System Scrubber	772,620	molten steel	3.32	lb/ton	99.20%	10.26	2.34	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	772,620	hot metal	1.28	lb/ton	98.00%	9.89	2.26	AP-42
	Truck and Ladle Hopper Baghouse	29,785	flux	2.13	lb/ton	99.50%	0.16	0.04	Inland emission factor
	Flux Storage and Batch Baghouse	29,785	flux	1.42	lb/ton	99.50%	0.11	0.02	Inland emission factor
	Roof Monitor	772,620	molten steel	0.10	lb/ton	70.00%	11.59	2.65	3% of secondary vent EF
No. 4 BOF	Scrubber	0	molten steel	28.50	lb/ton	99.40%	0.00	0.00	AIRS
	Secondary Vent System Baghouse	0	hours	22.30	lb/hr	98.87%	0.00	0.00	SIP Limit
	Reladling and Desulfurization Baghouse North	0	hot metal	1.28	lb/ton	99.60%	0.00	0.00	AP-42
	Reladling and Desulfurization Baghouse South	0	hot metal	1.28	lb/ton	99.60%	0.00	0.00	AP-42
	Roof Monitor	0	molten steel	0.100	lb/ton	70.00%	0.00	0.00	3% of secondary vent EF of 3.32 lb/ton. Condensibles based on IEPA August 1991 Report.
	Furnace Additives Bin Loading	0	lime alloys	0.001	lb/ton		0.00	0.00	Inland emission factor
	Torch Cut	0	molten steel	0.0035	lb/ton		0.00	0.00	Inland emission factor
	RHOB Condensers	0	molten steel	0.20	lb/ton	99.80%	0.00	0.00	Inland emission factor
	RHOB Material Handling	0	molten steel	0.20	lb/ton	99.00%	0.00	0.00	Inland emission factor
	Furnace Additive Hopper House	0	lime alloys	0.001	lb/ton		0.00	0.00	Inland emission factor

Increase in molten iron production (tons/year) of:	772,620
Increase in hours of operation of cast house (hours/year) of:	289

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor (Filterable)	Units	Control Efficiency	Emission Factor (condensable)	Units	Annual Change in Emissions		Source of Emission Factor
									(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	289	hours	22.000	lb/hr	98.10%	0.0321	lb/ton	4.35		SIP Limit+Condensable emissions
	Casthouse Baghouse No. 2 (west)	289	hours	11.220	lb/hr	99.00%	0.0321	lb/ton	2.79		SIP Limit+Condensable emissions
	Casthouse Fugitives	772,620	hot metal	0.310	lb/ton	95.00%	0.0055	lb/ton	8.11	1.85	AIRS+Condensable emissions
	Coke Transfer Station	112,132	coke	0.10	lb/ton	99.90%			0.01	0.00	AIRS
	Stockhouse Coke Baghouse	112,132	coke	0.04	lb/ton	98.00%			0.04	0.01	AIRS
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.05	lb/ton	99.00%			0.32	0.07	1996 data. 50% of PM emission factor. 225 tons dust per 4,876,242 tons of pellets to calculate PM.
	Slag Pit Operations	214,788	slag	0.0987	lb/ton				10.59	2.42	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.28	lb/ton	99.80%			0.08	0.02	50% of PM emission factor
	Coal Storage Baghouse C	274,178	coal	0.39	lb/ton	99.80%			0.11	0.02	50% of PM emission factor
	Coal Pulverizer Baghouse D	289	hours	0.99	lb/hr	99.80%			0.14		SIP Limit
	Coal Pulverizer Baghouse E	289	hours	0.99	lb/hr	99.80%			0.14		SIP Limit
	Coal Storage Baghouse F	274,178	coal	0.41	lb/ton	99.80%			0.11	0.03	50% of PM emission factor
	Coal Storage Baghouse G	274,178	coal	0.41	lb/ton	99.80%			0.11	0.03	50% of PM emission factor
	Coal Unloading	274,178	coal	0.01	lb/ton	85.00%			0.21	0.05	AIRS
Lime Plant	Silo Baghouses	200.0	hours	5.53	lb/hr	98.60%			0.55		SIP Limit
	No. 1 Kiln Baghouse	200.0	hours	3.57	lb/hr	99.20%	0.0131	lb/ton	0.40		SIP Limit+Condensable emissions
	No. 2 Kiln Baghouse	200.0	hours	3.57	lb/hr	99.20%	0.0131	lb/ton	0.40		SIP Limit+Condensable emissions
	Micro-Pulse Baghouse (2)	29,785	lime	0.35	lb/ton	98.00%			0.10	0.02	Based on 0.01 gr/dscf, 3000 acfm and 150 deg F
	Truck Loadout Baghouse	29,785	lime	2.40	lb/ton	99.80%			0.07	0.02	AP-42
No. 2 BOF	10 Furnace Stack	386,310	molten steel	13.1226	lb/ton	99.57%			10.90	2.49	AIRS. Condensibles based on December 1999 stack test
	20 Furnace Stack	386,310	molten steel	13.1226	lb/ton	99.57%			10.90	2.49	AIRS. Condensibles based on December 1999 stack test
	Caster Roof Monitor	772,620	slabs	0.0015	lb/ton		0.000525	lb/ton	0.78	0.18	Inland emission factor+0.000525 lb/ton for condensable emissions
	Ladle Metallurgy Station	772,620	molten steel	0.31	lb/ton	98.60%	0.00205	lb/ton	2.44	0.56	46% of PM emission factor+0.00205 lb/ton for condensable emissions
	Secondary, Ventilation System Scrubber	772,620	molten steel	1.7000	lb/ton	98.50%	0.00263	lb/ton	10.87	2.48	FIRE+0.00263 lb/ton for condensable emissions
	Charging Aisle and Relading Desulfurization Baghouse	772,620	hot metal	0.310	lb/ton	97.00%	0.0122	lb/ton	8.31	1.90	AP-42+0.012 lb/ton for condensable emissions
	Truck and Ladle Hopper Baghouse	29,785	flux	1.06	lb/ton	99.00%			0.16	0.04	Inland emission factor
	Flux Storage and Batch Baghouse	29,785	flux	0.71	lb/ton	99.00%			0.11	0.02	Inland emission factor
	Roof Monitor	772,620	molten steel	0.0622	lb/ton	70.00%			7.21	1.65	3% of secondary vent EF
No. 4 BOF	Scrubber	0	molten steel	13.123	lb/ton	98.83%			0.00	0.00	AIRS. Condensibles based on December 1999 stack test
	Secondary Vent System Baghouse	0	hours	22.3000	lb/hr	97.80%	0.0027	lb/ton	0.00	0.00	SIP Limit+Condensable emissions
	Relading and Desulfurization Baghouse North	0	hot metal	0.310	lb/ton	98.50%	0.0122	lb/ton	0.00	0.00	AP-42+0.012 lb/ton for condensable emissions
	Relading and Desulfurization Baghouse South	0	hot metal	0.310	lb/ton	98.50%	0.0122	lb/ton	0.00	0.00	AP-42+0.012 lb/ton for condensable emissions
	Roof Monitor	0	molten steel	0.0610	lb/ton	70.00%			0.00	0.00	3% of secondary vent EF of 1.70 lb/ton. Condensibles based on IEPA August 1991 Report.
	Furnace Additives Bin Loading	0	lime alloys	0.001	lb/ton				0.00	0.00	Inland emission factor
	Torch Cut	0	molten steel	0.0015	lb/ton		0.000525	lb/ton	0.00	0.00	Inland emission factor
	RHOB Condensers	0	molten steel	0.10	lb/ton	99.80%	0.000096	lb/ton	0.00	0.00	Inland emission factor
	RHOB Material Handling	0	molten steel	0.10	lb/ton	98.00%			0.00	0.00	Inland emission factor
	Furnace Additive Hopper House	0	lime alloys	0.001	lb/ton				0.00	0.00	Inland emission factor

Change in SO2 emission rates due to process modification at #7 Blast Furnace:

Increase in molten iron production (tons/year) of: 772,620

Increase in hours or operation of cast house (hours/year) of: 289

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	386,310	hot metal	0.1774	lb/ton		34.27	7.82	January 1990 Stack Test
	Casthouse Baghouse No. 2 (west)	386,310	hot metal	0.1774	lb/ton		34.27	7.82	January 1990 Stack Test
	Casthouse Fugitives	772,620	hot metal	0.01	lb/ton		3.86	0.88	5% of casting baghouse emission factor
	Coke Transfer Station	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	214,788	slag	0.124	lb/ton		13.31	3.04	Lafarge Slag Operations Factor using 95% ganulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 2 Kiln Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Micro-Pulse Baghouse (2)	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	386,310	molten steel	0.070	lb/ton		13.52	3.09	AP-42
	20 Furnace Stack	386,310	molten steel	0.070	lb/ton		13.52	3.09	AP-42
	Caster Roof Monitor	772,620	slabs	0.000	lb/ton		0.00	0.00	Not Applicable
	Ladle Metallurgy Station	772,620	molten steel	0.025	lb/ton		9.66	2.20	25% of 0.1 lb/ton EAF LMF emission factor
	Secondary, Ventilation System Scrubber	772,620	molten steel	0.014	lb/ton		5.41	1.23	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	772,620	hot metal	0.0094	lb/ton		3.63	0.83	September 2002 stack test
	Truck and Ladle Hopper Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	772,620	molten steel	0.0004	lb/ton		0.15	0.04	3% of secondary vent EF
No. 4 BOF	Scrubber	0	molten steel	0.001	lb/ton		0.00	0.00	AIRS
	Secondary Vent System Baghouse	0	molten steel	0.001	lb/ton		0.00	0.00	Engineering Judgement
	Reladling and Desulfurization Baghouse North	0	hot metal	0.0094	lb/ton		0.00	0.00	September 2002 stack test
	Reladling and Desulfurization Baghouse South	0	hot metal	0.0094	lb/ton		0.00	0.00	September 2002 stack test
	Roof Monitor	0	molten steel	0.00003	lb/ton		0.00	0.00	3% of secondary vent EF
	Furnace Additives Bin Loading	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Condensers	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Material Handling	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7*	Casthouse Baghouse No. 1 (east)	386,310	hot metal	0.5600	lb/ton		108.17	24.70	January 1990 Stack Test
	Casthouse Baghouse No. 2 (west)	386,310	hot metal	0.5600	lb/ton		108.17	24.70	January 1990 Stack Test
	Casthouse Fugitives	772,620	hot metal	0.012	lb/ton		4.64	1.06	5% of casting baghouse emission factor
	Coke Transfer Station	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	214,788	slag	0.066	lb/ton		7.09	1.62	Lafarge Slag Operations Factor using 95% ganulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	29,785	lime	2.000	lb/ton		29.78	6.80	Inland emission factor
	No. 2 Kiln Baghouse	29,785	lime	2.000	lb/ton		29.78	6.80	Inland emission factor
	Micro-Pulse Baghouse (2)	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	386,310	molten steel	139.00	lb/ton	90.25%	2,617.73	597.66	AIRS
	20 Furnace Stack	386,310	molten steel	139.00	lb/ton	90.25%	2,617.73	597.66	AIRS
	Caster Roof Monitor	772,620	slabs	0.000	lb/ton		0.00	0.00	Not Applicable
	Ladle Metallurgy Station	772,620	molten steel	0.042	lb/ton		16.23	3.70	December 1990 stack test
	Secondary, Ventilation System Scrubber	772,620	molten steel	0.139	lb/ton		53.70	12.26	0.1% of furnace stack emission factor
	Charging Aisle and Reladling Desulfurization Baghouse	772,620	hot metal	0.00	lb/ton		0.00	0.00	Not Applicable
	Truck and Ladle Hopper Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Gas Cleaning system	772,620	molten steel	0.02	lb/ton		8.50	1.94	Not Applicable
	Flux Storage and Batch Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	772,620	molten steel	0.0042	lb/ton		1.62	0.37	3% of secondary vent EF
No. 4 BOF	Scrubber	0	molten steel	139	lb/ton	94.22%	0.00	0.00	AIRS
	Secondary Vent System Baghouse	0	molten steel	0.139	lb/ton		0.00	0.00	0.1% of scrubber emission factor
	Reladling and Desulfurization Baghouse North	0	hot metal	0.00	lb/ton		0.00	0.00	Not Applicable
	Reladling and Desulfurization Baghouse South	0	hot metal	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	0	molten steel	0.0042	lb/ton		0.00	0.00	3% of secondary vent EF
	Furnace Additives Bin Loading	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Condensers	0	molten steel	1.07	lb/ton	98.00%	0.00	0.00	Inland emission factor
	RHOB Material Handling	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Gas Cleaning system	0	molten steel	0.047	lb/ton		0.00	0.00	Not Applicable
	Gas Cleaning system - RHOB	0	molten steel	0.09	lb/ton		0.00	0.00	Not Applicable

*The redesign of the 7 Blast Furnace Bishoff scrubber (blast furnace gas contact water point) will result in a decrease in contact water flow. The pumps feeding water to this system were pumping at their maximum flow capacity during baseline. The waterflow must decrease after the Reline project. Therefore, the change in CO emissions from 7 BF will be a decrease (say 0) from the contact water from scrubber since the actual flow of the redesigned system is unknown, but cannot exceed past pump limited values. Therefore, no change in CO emissions is expected because of this modification at the Gas Cleaning system

Increase in molten iron production (tons/year) of:	772,620
Increase in hours of operation of cast house (hours/year) of:	289

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	386,310	hot metal	0.0248	lb/ton		4.79	1.09	January 1990 Stack Test
	Casthouse Baghouse No. 2 (west)	386,310	hot metal	0.0248	lb/ton		4.79	1.09	January 1990 Stack Test
	Casthouse Fugitives	772,620	hot metal	0.0012	lb/ton		0.46	0.11	5% of casting baghouse emission factor
	Coke Transfer Station	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	214,788	slag	0.0107	lb/ton		1.15	0.26	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 2 Kiln Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Micro-Pulse Baghouse (2)	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	386,310	molten steel	0.08	lb/ton		15.45	3.53	AIRS
	20 Furnace Stack	386,310	molten steel	0.08	lb/ton		15.45	3.53	AIRS
	Caster Roof Monitor	772,620	slabs	0.000	lb/ton		0.00	0.00	Not Applicable
	Ladle Metallurgy Station	772,620	molten steel	0.003	lb/ton		1.16	0.26	1% of 0.302 PM10 EAF LMF emission factor
	Secondary, Ventilation System Scrubber	772,620	molten steel	0.020	lb/ton		7.73	1.76	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	772,620	hot metal	0.0024	lb/ton		0.93	0.21	September 2002 stack test at No. 4 BOF
	Truck and Ladle Hopper Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	772,620	molten steel	0.0006	lb/ton		0.23	0.05	3% of secondary vent EF
No. 4 BOF	Scrubber	0	molten steel	0.080	lb/ton		0.00	0.00	AIRS
	Secondary Vent System Baghouse	0	molten steel	0.020	lb/ton		0.00	0.00	FIRE
	Reladling and Desulfurization Baghouse North	0	hot metal	0.0024	lb/ton		0.00	0.00	September 2002 stack test
	Reladling and Desulfurization Baghouse South	0	hot metal	0.0024	lb/ton		0.00	0.00	September 2002 stack test
	Roof Monitor	0	molten steel	0.0006	lb/ton		0.00	0.00	3% of secondary vent EF
	Furnace Additives Bin Loading	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Condensers	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Material Handling	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable

Increase in molten iron production (tons/year) of:	772,620
Increase in hours of operation of cast house (hours/year) of:	289

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	386,310	hot metal	0.00922	lb/ton		1.78	0.41	Average of 1998 Stack Tests
	Casthouse Baghouse No. 2 (west)	386,310	hot metal	0.00922	lb/ton		1.78	0.41	Average of 1998 Stack Tests
	Casthouse Fugitives	772,620	hot metal	0.0009	lb/ton		0.35	0.08	10% of casting baghouse emission factor
	Coke Transfer Station	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	112,132	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	214,788	slag	0.00107	lb/ton		0.11	0.03	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	274,178	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 2 Kiln Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Micro-Pulse Baghouse (2)	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	29,785	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	386,310	molten steel	0.001	lb/ton		0.19	0.04	AIRS
	20 Furnace Stack	386,310	molten steel	0.001	lb/ton		0.19	0.04	AIRS
	Caster Roof Monitor	772,620	slabs	0.002	lb/ton		0.77	0.18	AIRS
	Ladle Metallurgy Station	772,620	molten steel	0.000	lb/ton		0.00	0.00	Not Applicable
	Secondary, Ventilation System Scrubber	772,620	molten steel	0.005	lb/ton		1.93	0.44	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	772,620	hot metal	0.001	lb/ton		0.39	0.09	AIRS
	Truck and Ladle Hopper Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	29,785	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	772,620	molten steel	0.00015	lb/ton		0.06	0.01	No. 4 BOF Roof Monitor
No. 4 BOF	Scrubber	0	molten steel	0.001	lb/ton		0.00	0.00	AIRS
	Secondary Vent System Baghouse	0	molten steel	0.005	lb/ton		0.00	0.00	FIRE
	Reladling and Desulfurization Baghouse North	0	hot metal	0.001	lb/ton		0.00	0.00	AIRS
	Reladling and Desulfurization Baghouse South	0	hot metal	0.001	lb/ton		0.00	0.00	AIRS
	Roof Monitor	0	molten steel	0.00015	lb/ton		0.00	0.00	3% of secondary vent EF
	Furnace Additives Bin Loading	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	0	molten steel	0.002	lb/ton		0.00	0.00	Inland emission factor
	RHOB Condensers	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Material Handling	0	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	0	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable

Increase in molten iron production (tons/year) of:	772,620
Increase in hours of operation of cast house (hours/year) of:	289

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	386,310	hot metal	0.000126	lb/ton	98.10%	0.0005	0.0001	1992 dust analyses
	Casthouse Baghouse No. 2 (west)	386,310	hot metal	0.000126	lb/ton	99.00%	0.0002	0.0001	1992 dust analyses
	Casthouse Fugitives	772,620	hot metal	0.0000216	lb/ton	95.00%	0.0004	0.0001	HAPS Inventory
	Coke Transfer Station	112,132	coke	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Stockhouse Coke Baghouse	112,132	coke	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Stockhouse Pellet Baghouse	1,295,275	pellet	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Slag Pit Operations	214,788	slag	0.0000010	lb/ton		0.0001	0.0000	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Storage Baghouse C	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Pulverizer Baghouse D	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Pulverizer Baghouse E	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Storage Baghouse F	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Storage Baghouse G	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Unloading	274,178	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
Lime Plant	Silo Baghouses	29,785	lime	0.000425	lb/ton	98.60%	0.0001	0.0000	HAPS Inventory
	No. 1 Kiln Baghouse	29,785	lime	0.007571	lb/ton	99.20%	0.0009	0.0002	1992 dust analyses
	No. 2 Kiln Baghouse	29,785	lime	0.007571	lb/ton	99.20%	0.0009	0.0002	1992 dust analyses
	Micro-Pulse Baghouse (2)	29,785	lime	0.00	lb/ton	98.00%	0.0000	0.0000	Not Applicable
	Truck Loadout Baghouse	29,785	lime	0.00	lb/ton	99.80%	0.0000	0.0000	Not Applicable
No. 2 BOF	10 Furnace Stack	386,310	molten steel	0.015	lb/ton	99.60%	0.0116	0.0026	1992 sludge analyses
	20 Furnace Stack	386,310	molten steel	0.015	lb/ton	99.60%	0.0116	0.0026	1992 sludge analyses
	Caster Roof Monitor	772,620	slabs	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Ladle Metallurgy Station	772,620	molten steel	0.0006636	lb/ton	99.40%	0.0015	0.0004	Based on weight percent of lead in MSDS.
	Secondary, Ventilation System Scrubber	772,620	molten steel	0.00754	lb/ton	97.80%	0.0641	0.0146	HAPS Inventory
	Charging Aisle and Reladling Desulfurization Baghouse	772,620	hot metal	0.0000627	lb/ton	97.00%	0.0007	0.0002	1992 dust analyses
	Truck and Ladle Hopper Baghouse	29,785	flux	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Flux Storage and Batch Baghouse	29,785	flux	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Roof Monitor	772,620	molten steel	0.0000772	lb/ton	70.00%	0.0089	0.0020	3% of secondary vent EF
No. 4 BOF	Scrubber	0	molten steel	0.015	lb/ton	98.83%	0.0000	0.0000	1992 sludge analyses
	Secondary Vent System Baghouse	0	molten steel	0.00754	lb/ton	97.80%	0.0000	0.0000	HAPS Inventory
	Reladling and Desulfurization Baghouse North	0	hot metal	0.0000627	lb/ton	98.50%	0.0000	0.0000	1992 dust analyses
	Reladling and Desulfurization Baghouse South	0	hot metal	0.0000627	lb/ton	98.50%	0.0000	0.0000	1992 dust analyses
	Roof Monitor	0	molten steel	0.000127	lb/ton	70.00%	0.0000	0.0000	HAPS Inventory
	Furnace Additives Bin Loading	0	lime alloys	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Torch Cut	0	molten steel	0.00	lb/ton		0.0000	0.0000	Not Applicable
	RHOB Condensers	0	molten steel	0.0000322	lb/ton		0.0000	0.0000	Not Applicable
	RHOB Material Handling	0	molten steel	0.00003	lb/ton	98.00%	0.0000	0.0000	Inland emission factor
	Furnace Additive Hopper House	0	lime alloys	0.00	lb/ton		0.0000	0.0000	Not Applicable

Change in PM emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	1.90	lb/mmcf		0.508	0.1159	AP-42
	Stoves (BFG)	9,582.8	mmcf	0.68	lb/mmcf		3.258	0.7439	January 1998 Stack Test
	Total Stoves						3.766	0.8598	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	1.90	lb/mmcf		0.008	0.0017	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	1.90	lb/mmcf		0.008	0.0017	AP-42
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	1.90	lb/mmcf		0.015	0.0034	AP-42
	Boiler House (BFG)	28,082.5	mmcf	0.68	lb/mmcf		9.548	2.1799	January 1998 Stack Test
	Boiler House (Mixed Gas)	0.0	mmcf	1.37	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						9.563	2.1833	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	1.90	lb/mmcf	99.90%	0.000	0.0000	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	1.90	lb/mmcf	99.90%	0.000	0.0000	AP-42

Change in PM10 (Filterable +Condensable) emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	7.60	lb/mmcf		2.031	0.4636	AP-42
	Stoves (BFG)	9,582.8	mmcf	4.51	lb/mmcf		21.609	4.9336	January 1998 Stack Test
	Total Stoves						23.640	5.3972	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	7.60	lb/mmcf		0.030	0.0069	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	7.60	lb/mmcf		0.030	0.0069	AP-42
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	7.60	lb/mmcf		0.059	0.0135	AP-42
	Boiler House (BFG)	28,082.5	mmcf	4.51	lb/mmcf		63.326	14.4580	January 1998 Stack Test
	Boiler House (Mixed Gas)	0.0	mmcf	5.47	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						63.385	14.4715	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	7.60	lb/mmcf	99.20%	0.002	0.0005	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	7.60	lb/mmcf	99.20%	0.002	0.0005	AP-42

Change in SO2 emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	0.60	lb/mmcf		0.160	0.0366	AP-42
	Stoves (BFG)	9,582.8	mmcf	14.70	lb/mmcf		70.433	16.0807	Heating Value of 89 MMBTU/BTU
	Total Stoves						70.594	16.1173	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	0.60	lb/mmcf		0.002	0.0005	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	0.60	lb/mmcf		0.002	0.0005	AIRS
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	0.60	lb/mmcf		0.005	0.0011	AP-42
	Boiler House (BFG)	28,082.5	mmcf	14.70	lb/mmcf		206.406	47.1247	Heating Value of 89 MMBTU/BTU
	Boiler House (Mixed Gas)	0.0	mmcf	0.43	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						206.411	47.1257	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	0.60	lb/mmcf		0.022	0.0050	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	0.60	lb/mmcf		0.022	0.0050	AP-42

Change in CO emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	84.00	lb/mmcf		22.443	5.1240	AP-42
	Stoves (BFG)	9,582.8	mmcf	13.70	lb/mmcf		65.642	14.9867	AIRS
	Total Stoves						88.085	20.1107	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	84.00	lb/mmcf		0.336	0.0767	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	84.00	lb/mmcf		0.336	0.0767	AP-42
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	84.00	lb/mmcf		0.654	0.1493	AP-42
	Boiler House (BFG)	28,082.5	mmcf	13.70	lb/mmcf		192.365	43.9189	AIRS
	Boiler House (Mixed Gas)	0.0	mmcf	60.40	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						193.019	44.0682	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	84.00	lb/mmcf		3.075	0.7020	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	84.00	lb/mmcf		3.075	0.7020	AP-42

Change in NOx emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	104.00	lb/mmcf		27.787	6.3440	AP-42
	Stoves (BFG)	9,582.8	mmcf	23.00	lb/mmcf		110.202	25.1602	AIRS
	Total Stoves						137.988	31.5042	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	100.00	lb/mmcf		0.400	0.0913	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	100.00	lb/mmcf		0.400	0.0913	AIRS
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	104.00	lb/mmcf		0.809	0.1848	AP-42
	Boiler House (BFG)	28,082.5	mmcf	23.00	lb/mmcf		322.948	73.7325	AIRS
	Boiler House (Mixed Gas)	0.0	mmcf	72.40	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						323.758	73.9173	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	104.00	lb/mmcf		3.807	0.8691	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	104.00	lb/mmcf		3.807	0.8691	AP-42

Change in VOC emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	5.50	lb/mmcf		1.469	0.3355	AP-42
	Stoves (BFG)	9,582.8	mmcf	0.00	lb/mmcf		0.000	0.0000	Not Applicable
	Total Stoves						1.469	0.3355	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	5.50	lb/mmcf		0.022	0.0050	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	5.50	lb/mmcf		0.022	0.0050	AP-42
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	5.50	lb/mmcf		0.043	0.0098	AP-42
	Boiler House (BFG)	28,082.5	mmcf	0.00	lb/mmcf		0.000	0.0000	Not Applicable
	Boiler House (Mixed Gas)	0.0	mmcf	72.40	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						0.043	0.0098	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	5.50	lb/mmcf		0.201	0.0460	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	5.50	lb/mmcf		0.201	0.0460	AP-42

Change in Pb emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	534.4	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AP-42
	Stoves (BFG)	9,582.8	mmcf	0.0000667	lb/mmcf		0.000	0.0001	HAPs Inventory
	Total Stoves						0.000	0.0001	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	8.0	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AP-42
	20 Furnace Stack Ignitor (NG)	8.0	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AIRS
No. 5 Boiler House	Boiler House (NG)	15.6	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AP-42
	Boiler House (BFG)	28,082.5	mmcf	0.0000667	lb/mmcf		0.001	0.0002	HAPs Inventory
	Boiler House (Mixed Gas)	0.0	mmcf	0.0003310	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						0.001	0.0002	
Lime Plant	No. 1 Kiln (NG)	73.2	mmcf	0.000460	lb/mmcf	99.20%	0.000	0.0000	AP-42
	No. 2 Kiln (NG)	73.2	mmcf	0.000460	lb/mmcf	99.20%	0.000	0.0000	AP-42

Calculation of Particulate Matter and PM10 emissions from use of plant roads for the change

The applicant has presented detailed calculations for the emissions from the roads and other material han
These calculations are in Table 3-16 in the application. From these calculations following was summarized:

Emission Unit	Additional PM emissions (tons/year)	Additional PM emissions (lb/hour)	Additional PM10 emissions (tons/year)	Additional PM10 emissions (lb/hour)
Paved Roads	28.82	6.58	6.02	1.37

Calculation of emissions from change of slag handling

The Slag pits at Ispat were replaced by Slag Granulation/Pelletization process

The following tables show these changes and restrictions

Emission Unit		Changes in Annual Emission Rates of Criteria Air Pollutants (tons/yr)						
		PM	PM10	SO2	CO	NOx	VOC	H2S
Slag pits	Baseline annual average throughput (tons/year) 1996-97	993,216						
	Emission Factor (lb/ton)	0.470	0.320	0.578	0.086	0.025	0.002	0.193
	Actual Emissions (tons/year)	233.41	158.91	287.04	42.71	12.32	1.16	95.85
	Actual Fugitive Emissions (tons/year)	169.57	38.09					
	Total (tons/year)	402.98	197.00	287.04	42.71	12.32	1.16	95.85
Slag Granulator / Pelletizer	Potential annual average throughput (tons/year)	1,013,138						
	Emission Factor (lb/ton)	\$\$	\$\$	0.100	0.065	0.010	0.001	0.070
	Potential Emissions (tons/year)	168.94	114.88	50.66	32.93	5.07	0.51	35.46
	Potential Fugitive Emissions (tons/year)	138.59	30.08					
	Total (tons/year)	307.53	144.96	50.66	32.93	5.07	0.51	35.46
Allowable emissions (tons/year) available for Slag pits		64.47	44.03	236.38	9.78	7.25		60.39
Allowable throughput based on emissions (tons/year)		274,321.88	275,215.50	817,932.17	227,471.93	584,692.26		625,756.25
The least of the above allowable throughput in tons/year will be available for the slag pits to continue operation during emergency or maintenance outages								
Allowable throughput (tons/year) available for Slag pits for continued operation		227,471.93						

\$\$ the PM/PM10 limit for the slag granulator/pelletization based on limit of 0.03 grain/dscf allowable under SIP

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document (TSD) for a Part 70 Significant Source Modification and Major Modification for Prevention of Significant Deterioration

Source Description and Amendment Request

Source Name:	Ispat Inland, Inc.
Source Location:	3210 Watling Street, East Chicago, Indiana, 46312
County:	Lake
SIC Code:	3312
Operation Permit No.:	089-6577-00316
Operation Permit Issuance Date:	Not yet issued
Significant Source Modification No.:	089-16966-00316
Permit Reviewer:	Gurinder Saini

On September 25, 2003, the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) (hereafter referred to as 'The department') had a notice published in the Times in Merrillville and the Post in Munster, Indiana, stating that Ispat Inland, Inc., had applied for Significant Source Modification to perform a detailed reline and addition of fourth stove at their existing No.7 Blast Furnace. The public notice also stated that OAQ proposed to issue the approval for this operation and provided information on how the public could review the proposed approval and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on the draft permit.

The department had conducted a public hearing in order to receive any oral or written comments from the public in area on October 8, 2003. The hearing was held at Room 205 of Ivy Tech State College, De La Garza Campus, 410 East Columbus Drive, East Chicago, Indiana. No written or oral comments were received during this public hearing. A transcript of the public hearing proceedings is accessible in the department files for this source located in IDEM file room located at 100 N. Senate Ave, Indianapolis, IN 46206.

The department has decided to revise some conditions in the permit to further clarify the intent or elaborate on the requirement in greater detail. These changes (where language deleted is shown with ~~strikeout~~ and that added is shown in **bold**) are shown as follows:

1. *Condition B.4 (a)*

The condition B.4 requires the Permittee to submit an affidavit of construction verifying the emission units were constructed as proposed in the application and the permit. The emissions units covered in the affidavit of construction can begin operation on the date this affidavit is sent to the department. The Permittee was required under the Administrative Order on Consent EPA-5-03-113 (a) IN-03, to amend the PSD permit application to include the detailed reline project as part of the same permit. The order allowed the Permittee to start operation of the Blast Furnace prior to receipt of this permit. The Permittee is required to notify U.S.EPA within 30 days of completion of the Reline project. The Permittee will comply with this notification requirement. Therefore, the department has decided to make the following change to condition B.4 (a) in order to allow the operation of the No.7 Blast Furnace to begin without the need to submit the affidavit:

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the ~~emission units~~ **fourth stove at No.7 Blast Furnace** ~~were was~~ constructed as proposed in the application and the permit. The emissions units covered in the Significant Source Modification approval **including No.7 Blast Furnace equipped with maximum of four stoves** may begin operation on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) **The Permittee is not required to submit an affidavit of construction for the detailed reline of the No.7 Blast Furnace and this permit authorizes the Permittee to commence operation of the No.7 Blast Furnace using a maximum of three stoves and other upstream and downstream emissions units on completion of the detailed reline in accordance with this permit.**
- (bc) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is regulated under the provisions of 326 IAC 2-2, the source may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-2 and an Operation Permit Validation Letter is issued.
- (ed) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is not regulated under the provisions of 326 IAC 2-2, the source may not begin operation until the source modification has been revised pursuant to the provisions of 326 IAC 2-7-10.5 and the provisions of 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (de) The Permittee shall attach the Operation Permit Validation Letter to this permit.
- (ef) The changes covered by this Significant Source Modification will be included in the Part 70 application.
- (fg) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:
 - (1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.
 - (2) If the Part 70 permit has gone through final USEPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45-day USEPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.
 - (3) If the Part 70 permit has gone through public notice, but has not gone through final USEPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after USEPA review.

2. *Condition C.2, C.12*

The changes in this approval involve modification to the existing emissions units at this Source. Therefore, the usual period of construction of an emission unit is not applicable for this modification. The department has decided to provide the Permittee a period of 180 days to implement some of these requirements after commencement of operation following completion of the detailed reline. Therefore, the following requirements are revised:

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)]
[326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) **within 180 days of commencement of when operation begins following the completion of the detailed reline**, including the following information on each emissions unit:

C.12 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented **within 180 days of commencement of when operation begins following the completion of the detailed reline. The Permittee is required to maintain records of production of hot molten metal at No.7 Blast Furnace in accordance with condition D.0.6 and D.0.8 (a) of this permit from the date of commencement of operation after the completion of detailed reline.** The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

3. *Condition C.7*

The department has revised this condition to more closely reflect the language from the applicable regulation as follows:

C.7 Fugitive Dust Emissions [326 IAC 6-1-11.1]

Pursuant to 326 IAC 6-1-11.1 (Lake County Fugitive Particulate Matter Control Requirements), the particulate matter emissions from source wide activities shall meet the following requirements:

- (a) The average instantaneous opacity of fugitive particulate emissions from a paved road shall not exceed ten percent (10%).
- (b) The average instantaneous opacity of fugitive particulate emissions from an unpaved road shall not exceed ten percent (10%).
- (c) The average instantaneous opacity of fugitive particulate emissions from batch transfer shall not exceed ten percent (10%). **Where adequate wetting of the material for fugitive particulate emissions control is prohibitive to further processing or reuse of the material, the opacity shall not exceed ten percent (10%) three (3) minute average. This includes material transfer to the initial hopper of a material processing facility as defined in 326 IAC 6-1-11.1(c) or material transfer for transportation within or outside the source property including, but not limited to, the following:**
- (i) **Transfer of slag product for use by asphalt plants:**
 - (A) From a storage pile to a front end loader; and
 - (B) From a front end loader to a truck.
 - (ii) **Transfer of sinter blend for use at the sinter plant:**
 - (A) From a storage pile to a front end loader;
 - (B) From a front end loader to a truck; and

- (C) From a truck to the initial processing point
- (iii) Transfer of coal for use at a coal processing line:
 - (A) From a storage pile to a front end loader; and
 - (B) From a front end loader to the initial hopper of a coal processing line.

Compliance with any operation lasting less than three minutes shall be determined as an average of consecutive operations recorded at fifteen second intervals for the duration of the operation.

- (d) The opacity of fugitive particulate emissions from slag and kish handling when transferring from pots and trucks shall not exceed twenty percent (20%) on a six (6) minute average.
- (e) The opacity of fugitive particulate emissions from continuous transfer of material onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average.
- (f) The opacity of fugitive particulate emissions from storage piles shall not exceed ten percent (10%) on a six (6) minute average. These limitations may not apply during periods when application of fugitive particulate control measures are either ineffective or unreasonable due to sustained very high wind speeds. During such periods, the company must continue to implement all reasonable fugitive particulate control measures and maintain records documenting the application of measures and the basis for a claim that meeting opacity limitation was not reasonable given prevailing wind conditions.
- (g) There shall be a zero (0) percent frequency of visible emission observations of a material during the in-plant transportation of material by truck or rail at any time. **Material transported by truck or rail that is enclosed and covered shall be considered in compliance with the in-plant transportation requirement.**
- (h) The opacity of fugitive particulate emissions from the in-plant transportation of material by front end loaders and skip hoists shall not exceed ten percent (10%).
- (i) There shall be a zero (0) percent frequency of visible emission observations from a building enclosing all or part of the material processing equipment, except from a vent in the building.
- (j) The PM_{40.10} emissions from building vents shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.
- (k) The opacity of particulate emissions from dust handling equipment shall not exceed ten percent (10%).
- (l) Any facility or operation not specified in 326 IAC 6-1-11.1(d) shall meet a twenty percent (20%), three (3) minute average opacity standard.
- (m) PM_{40.10} emissions from each material processing stack shall not exceed 0.022 grains per dry standard cubic foot and ten percent (10%) opacity.
- (n) Fugitive particulate matter from the material processing facilities **except at a crusher in which a capture system is not used** shall not exceed ten percent (10%) opacity.
- (o) **Fugitive particulate matter from a crusher in which a capture system is not used shall not exceed fifteen percent (15%) opacity.**

The Permittee shall achieve these limits by controlling fugitive particulate matter emissions according to the Fugitive Dust Control Plan. The Fugitive Dust Control Plan shall be updated to include any new emissions units or control strategies before the startup of equipment after this modification.

3. *Condition D.1.8*

The department has revised this condition as follows, to remove the reference to flare stacks for SO₂ emission limitation in State Implementation Plan (SIP) as it does not specifically limit the flare stack:

D.1.8 Sulfur Dioxide [326 IAC 7-4-1.1(c)(10)(C)]

- (a) Pursuant to 326 IAC 7-4-1.1(c)(10)(C), the SO₂ emissions from the No. 7 blast furnace stove stack (3 units) (170) ~~and No. 7 blast furnace gas cleaning stack flare (195)~~ shall not exceed 0.146 pounds per MMBtu.

4. *Condition D.6.4*

The department has revised this condition to change the units for measurement of slag as follows:

D.6.4 Record Keeping Requirements

To document compliance with D.6.3, the Permittee shall keep records of slag produced at the No.7 Blast Furnace **and processed at the slag pits** in terms of tons of ~~metal~~ **slag** per month. These records shall be kept for at least a period of 60 months.

In the TSD for the permit, the department had presented the detailed calculation for net emissions increase from this modification at Ispat. In these calculations, the department unintentionally left out the increase in emissions from the use of slag pits at curtailed level from the contemporaneous emissions increase calculations. These calculations in 'Controlled Potential to Emit' section of the TSD are revised as shown below:

Controlled Potential to Emit

- (a) The net emissions increase based on future potential to emit and past actual emissions from the proposed modification are (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Netting evaluation

Increases Attendant to Project	Criteria Air Pollutants Emission Rates (tons/yr)					
Emissions unit	PM	PM10	SO2	CO	NOx	Pb
Blast Furnace No. 7	31.94	49.86	156.29	316.14	149.18	0.0017
PCI	1.16	0.90	0.00	0.00	0.00	0.0000
Lime Plant	1.52	1.53	0.04	59.62	0.06	0.0019
No. 2 BOF*	57.18	51.73	45.90	5316.18	41.75	0.0985
No. 4 BOF*	0.00	0.00	0.00	0.00	0.00	0.0000
No. 5 Boiler House	9.56	63.38	206.41	193.01	323.75	0.0009
Fugitive Emissions	28.82	6.02				
Shutdown of No. 2A Blooming Mill/21-Inch Bar Mill	(5.02)	(4.98)	(0.37)	(52.02)	(116.34)	(0.0533)
Project Emissions	125.11	168.44	408.28	5832.95	398.42	0.05

*The molten metal from the No.7 Blast Furnace can be processed either at No.2 or No.4 BOF. The emissions of all pollutants other than PM/PM10 are worst case where all the additional hot metal is routed to No.2 BOF. The emissions of CO end up as major and phenomenally higher in this case than the case when all the additional hot metal is routed to No.4 BOF. Therefore, for clarity, IDEM, OAQ has presented only one scenario where all of the additional hot metal is routed to No.2 BOF as worst case. For PM/PM10, Ispat has enough credits available in the contemporaneous period to net out of major NSR review.

Contemporaneous and Creditable Changes			Criteria Air Pollutants Emission Rates (tons/yr)					
Emissions unit	Shutdown/ Modification Year	Startup Year	PM	PM10	SO2	CO	NOx	Pb
No. 4 AC Station*	1999		(605.80)	(605.80)	(1,355.50)	(202.50)	(3,284.00)	(0.36)
80-Inch No. 4 WBF Project	2001		(0.14)	(0.14)	(0.01)	1.08	(51.74)	
EAFF Vacuum Degasser		2001	1.40	1.40	0.10	25.10	18.20	
No. 6 CGL		2001	6.10	6.10	0.50	5.43		
Slag pits (complete curtailment)	2002		(402.98)	(197.00)	(287.04)	(42.71)	(12.32)	
Slag Granulation/Pelletization		2002	307.53	144.96	50.66	32.93	5.07	
Slag pits (continued operation)**		2002	53.46	36.4	65.74	9.78	2.82	
EAFF DRI		2002	8.68	5.84				
Contemporaneous and Creditable Emissions Changes			(685.20) (631.74)	(644.64) (608.24)	(1,594.29) (1525.55)	(180.67) (170.89)	(3,324.79) (3321.97)	(0.36)
Net Emissions Changes			(560.09) (506.63)	(476.20) (439.8)	(1,183.02) (1117.28)	5,652.28 5662.06	(2,926.38) (2923.56)	(0.31)

*The actual emissions from the No.4 AC station in the baseline period were higher than these numbers. These numbers represent the allowable portion of baseline emissions in 1996-1997 which was allowed to be emitted from the No.4 AC station in the construction permit amendment 089-14245-00316 issued on November 30, 2001. In accordance with 326 IAC 2-2-1 (cc)(2)(E)(i), the allowable emissions are used as credit because these are lower than the actual emissions in the baseline period.

In addition in case of the SO₂ emissions from the No.4 AC station, to calculate creditable decreases, IDEM, OAQ used the Continuous Emissions Monitoring System (CEMs) data submitted on June 30, 2003. In a letter dated June 18, 2003, Ispat has contested the use of CEM data to establish baseline actual emissions from the 4 AC station for SO₂. Ispat has stated that "...[I]t will illegitimately underestimate the SO₂ emission decreases from the shutdown [of 4 AC station]. Specifically, Ispat has already demonstrated that its use of emission factors and fuel usage, rather than CEM data to calculate creditable decreases is wholly appropriate". IDEM, OAQ disagrees with this reasoning and believes that it has appropriately used the CEMs data to calculate the SO₂ creditable decreases from the 4 AC station.

****The slag pits are allowed to continue to operate with maximum slag throughput restriction of 227,472 tons per year.**

The detailed emission calculations for the above are shown in pages 1 through 20 of the Appendix-A attached to this TSD.

- (a) Ispat has selected the baseline timeframe for the No.7 Blast Furnace to calculate the increase in 'actual emissions' from July 1996 to June 1998. Ispat has presented information in the application that the operation of No.7 Blast Furnace was not 'normal' during a more recent timeframe due to catastrophic failures causing production rate to be lowered. Therefore, the operation during the baseline period of 1996-1998 is representative of 'normal operation'. This is consistent with the definition of 'actual emissions' under 326 IAC 2-2-1 (b), which allows the department discretion to use a different time period upon a

determination that it is more representative of 'normal source operation'.

In a letter¹ U.S. EPA stated that, "The pre-change 2-year period used in determining the current actual baseline emissions must be representative of 'normal' operations. Sources desiring to use **other than a 2-year period** or a **baseline period prior to the last 5 years** may seek the Permitting Authority's specific determination that **such period is more representative of normal operations**" [emphasis added].

- (b) The net emissions increase because of this modification to an existing major stationary source is significant for CO because it is greater than the PSD significance level. Therefore, this modification is subject to the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) for major modification for CO emissions.
- (c) The CO contained in the blast furnace gas (BFG) from the No.7 Blast Furnace (only unit being modified and therefore subject to the requirements of 326 IAC 2-2-3 (Control Technology Review; requirements) to BACT) shall be controlled by combusting it in the associated Stoves and/or No.5 Boiler House. In addition the BFG will be combusted at a flare associated with No.7 Blast Furnace only when it cannot be otherwise utilized safely and cost effectively.
- (d) There is no net emissions increase from this modification for all regulated pollutants except CO in the above table. Therefore, these pollutants are not subject to major NSR review under 326 IAC 2-2 and 326 IAC 2-3. The permit will contain conditions to make the decreases in the contemporaneous period creditable by providing enforceable conditions restricting or shutting down the emissions units in the netting table.

The following table shows the VOC emissions increases due to this source modification project at Ispat for the purpose of evaluating the applicability of de-minimis under 326 IAC 2-3-1(l).

De minimis evaluation

Emission Unit	VOC (tons/year)
<i>Source Modification Project</i>	
Blast Furnace No. 7	5.49
PCI	0.00
Lime Plant	0.00
No. 2 BOF	3.57
No. 4 BOF	0.00
No. 5 Boiler House	0.04
Fugitive Emissions	0.00
Shutdown of No. 2A Blooming Mill/21-Inch Bar Mill	(34.44)
Project net emissions increase	(25.3)

Written comments were received from James R. Carson, Senior Staff Engineer, Environmental Affairs of Ispat Inland, Inc. on October 27, 2003. These comments and IDEM, OAQ responses, including changes to the permit (where language deleted is shown with ~~strikeout~~ and that added is shown in **bold**) are as follows:

¹ See letter from Richard R.Long, Director, Air and Radiation Program, to Gary D.Helbling of North Dakota Health Department, "EPA Region VIII's Opinion on Otter Trail Power Company's Coyote Station Low Pressure Rotor Upgrade Proposal", April 17, 2001. (This letter is available in the database maintained by U.S.EPA Region VII at <http://www.epa.gov/region7/programs/artd/air/policy/policy.htm>)

General Comment Relating to This Permit and Our Future Anticipated Title V Permit

The following section of comments addresses issues that are significant with respect to both this permit and our future anticipated Title V permit. Most of the related issues are part of on-going Title V negotiations and have not been resolved to industry's satisfaction. For those issues that cannot be resolved immediately, please remove them and address them in the Title V comment and development period. If any of these provisions/issues are not removed, we must have IDEM's concurrence that provisions/issues in this permit that are subsequently changed/resolved (in Title V discussions and correspondence) after the issuance of this permit must be allowed to supercede the same provisions set forth in this permit.

Response to General Comment

The Part 70 permit consolidates all of a Source's applicable air pollution control requirements into one permit. Therefore, the Part 70 permit for this Source will incorporate all the operating conditions and supercede other provisions from this approval. Therefore, the Part 70 permit at its issuance will reflect the latest version of the conditions that the commentator has expressed concerns about.

Comment 1:

Condition C.3 - Deviations from Permit Requirements and Conditions.

This section contains a very broad definition of a deviation, which we believe does not appropriately deal with the practical ability to obtain 100% of all compliance monitoring data. As a practical matter, it will not always be possible to obtain 100% of the required data, and a number of federal regulations deal with this issue by requiring that the data capture standard be 95%. We believe this is a more practical approach than the one provided for in Condition C.3, and we request that such a data capture standard be included in this condition.

Response 1:

The requirements in condition C.3 follow the intent of the Part 70 permit program to ensure continuous compliance with the applicable requirements. Therefore, the department has required that compliance monitoring data for the complete duration of the operation should be assessed for ascertaining compliance. The department usually handles concerns about the non-availability of 100% of compliance monitoring data as expressed by the commentator by exercising "enforcement discretion" to pursue or not to pursue these matters. The Enforcement Section of the department works closely with the Permittee to understand, in great detail, the physical constraints or realistic factors influencing the information availability. The department uses a case-by-case evaluation of the missing information in order to exercise the enforcement discretion. Therefore, no changes are made to any permit conditions.

Comment 2:

Condition C.14 – Pressure gauge and other instrument specifications.

The requirement for a "normal" reading to be 20% of full scale is categorically unacceptable. The precision of any instrument should be determined by the specifications of the manufacturer. For existing instrumentation without specific manufacturer specifications, this number should be 10%. Many different instruments exist today, some more precise than others. However, facilities should not be required to make wholesale changes in instrumentation when the existing instrumentation is completely adequate. This requirement also becomes troublesome when a monitored parametric has a relatively large range of compliant operation. For example, a baghouse with a pressure drop range of 1 to 6 must install a meter such that the low end, a pressure drop of 1, is 20% or more of full scale. This means that the meter can only have a full-scale range of 0 to 5! In addition we request that these pressure gauge specifications be moved from Section C and placed into Section D.

Response 2:

The scale of a gauge is an important factor in providing reasonable assurance of compliance with applicable requirements with a certain degree of accuracy. According to C.14(a), the gauges employed to measure pressure drop should have a scale such that normal readings shall be no less than 20% of full scale. Therefore, if the maximum reading on a scale in a meter is very large (say 100 inches of water) and optimum operating conditions for the equipment for which this meter is used fall in relatively small values (say 1-4 inches of water), any variations in the parameter may not be easily observable. In such cases both the accuracy and reliability of data will be questionable. Therefore, the department has established the criteria of 20% to use for range on the scale for gauges to ensure accuracy and reliability of measurements. The Permittee should provide more detailed information about instances where certain constraints prohibit application of 20% criteria for gauges and the department intends to evaluate this on a case-by-case basis in order to provide the flexibility and still meet the objective compliance assurance.

In the example cited by the commentator, the normal readings are a range of readings from 1 to 6 inches. The 6 inches being the upper end of the range restricts the scale to be used to monitor. Therefore, in accordance with this condition the scale on this meter should not exceed a maximum value of 30. So the commentator's perception that the gauge should range from 0 to a maximum value of 5 is incorrect and inconsistent with the intent of this condition. Therefore, no changes are made to any permit conditions.

Comment 3:

Condition C.15 – Compliance Response Plan.

The compliance response plan provision must reflect language and concepts that were accepted by IDEM as a part of discussions with the Case Coalition. Please see the attachment for the appropriate language.

C.18 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition **set forth in Section D** of this permit, **except that no CRP is required for any compliance monitoring condition subject to the Start-up, Shut Down, Malfunction Plan ("SSM") or Parametric Monitoring Plan Requirements of 40 CFR Part 60 or Part 63 (hereafter this requirement for a CRP shall be referred to as the "CRP Requirement")**. A CRP shall be submitted to IDEM, OAQ (*and local agency if applicable*) upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:
 - (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps; **and**;
 - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.
- (b) For each compliance monitoring condition of this permit **subject to this CRP Requirement**, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

- (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan; or
 - (2) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from, **or a violation of**, this permit so long as the Permittee documents such response steps in accordance with this condition.
 - (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
 - (4) Failure to take reasonable response steps shall constitute a violation of the permit.
- (c) **For each compliance monitoring condition of this permit subject to this CRP Requirement, ‡** the Permittee is not required to take any further response steps for any of the following reasons:
- (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
 - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.
 - (3) An automatic measurement was taken when the process was not operating.
 - (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.
- (e) **For each compliance monitoring condition of this permit subject to this CRP Requirement.** the Permittee shall record all instances when, **in accordance with Section D**, response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

Response 3:

The compliance monitoring requirements are contained in the D sections of this permit only. Therefore, the department does not feel that there is a need to state in sub-item (a) "set forth in Section D". In addition, the

language deeming the Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan under 40 CFR 60/63, as equivalent to the Compliance Response Plan (CRP) is already present in sub-item (a). The change in sub-item (a)(1), the addition of the word "and" at the end, is not required because the sub-item (a) automatically includes both the sub-sub-items (1) and (2). The change to sub-item (b) is not required because any compliance monitoring requirements would automatically be subject to CRP requirements. Therefore, there is no need to add the suggested language.

The addition of the language "or a violation of" in sub-item (b)(2) is not required because it is already acknowledged that taking the additional steps is not considered a 'deviation'. Therefore, as this action is not a 'deviation' from any permit conditions, it would not result in any 'violations' of permit terms also.

The language suggested in sub-item (c) and (e) is not required because as stated earlier, the compliance monitoring condition in this permit are subject to the CRP provisions. Therefore, there is no need to add the suggested language.

The department has made the following change to the condition C.15 in order to apply only to situations where the emissions unit will continue to operate for an extended time while the compliance monitoring parameter is out of range. This change is intended to provide the department an opportunity to assess the situation and determine whether any additional actions are necessary in order to demonstrate compliance with applicable requirements:

C.15 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5]
[326 IAC 2-7-6]

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan under 40 CFR 60/63, such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:
- (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
 - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan, the Permittee shall amend its Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan to include such response steps taken.

The OMM Plan or Parametric Monitoring and SMM Plan shall be submitted within the time frames specified by the applicable 40 CFR60/63 requirement.

- (b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
- (1) Reasonable response steps shall be taken as set forth in the Permittee's current

Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan; or

- (2) If none of the reasonable response steps listed in the Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
- (3) ~~If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.~~

If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, and it will be 10 days or more until the unit or device will be shut down, then the permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
- (4) Failure to take reasonable response steps shall be considered a deviation from the permit.

Comment 4:

D.1.17, D.2.7, D.3.9, D.4.12, D.4.15, D.5.10, and D.5.13: The open-ended statement that pressure gauges must be subject to approval by IDEM is unacceptable. Any gauge must be operated per its manufacturer or instrument service specifications. If IDEM wishes to have this authority, detailed specifications for instruments must be created through a rule development process.

Response 4:

The intent of these conditions is to assure reasonable compliance with the permit conditions. Therefore, in order to certify reasonable compliance based on readings measured by the pressure gauges and other instruments, these would have to be approved by the department. The gauges and instruments not otherwise approve-able by the department do not provide the assurance of compliance, because the readings on these cannot be guaranteed for accuracy. Therefore, the department disagrees with the commentator and no change is made to any permit conditions. The department intends to work closely with the Permittees on a case-by-case basis in order to understand similar concerns and would be willing to discuss and understand the expectations in this matter further at any point of time in the future. At this time, the department does not have sufficient information in support of the commentator's claim.

Comment 5:

D.1.17, D.2.7, D.3.9, D.4.12, D.4.15, D.5.10, and D.5.13: The requirement for periodic instrument "calibrations" becomes unnecessarily very substantial with respect to ISO 14001 requirements. Please change "calibrated" to "verified for accuracy."

Response 5:

The department concurs with the commentator and agrees to make the change in the language in the conditions D.1.17, D.2.7, D.3.9, D.4.12, D.4.15, D.5.10, and D.5.13 as follows:

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be ~~calibrated~~ **verified for accuracy** at least once every six (6) months.

Comment 6:

D.1.19, D.2.9, D.3.11, D.4.17, and D.5.15 Both provisions for multi-compartment baghouses and single-compartment baghouses must allow for operations to continue if the defective bags can be isolated or blanked. Please add to both (a) and (b), after the word repaired, "...replaced, blanked, or isolated..." The baghouses covered by these provisions contain large amounts of individual bags. If a bag becomes compromised, it is much more cost effective and efficient to blank or isolate the bag, rather than immediately repairing or replacing it. Blanking or isolating a bag has an undetectable effect on the incremental performance of the overall baghouse. If, after a significant cumulative number of bags have been blanked or isolated, or if performance decreases are evidenced by out-of range parameters, it is more cost effective to replace or repair the problem bags at one time, especially if a process shutdown is required.

Response 6:

The department agrees that the 'blanking or isolating' would be an acceptable action for broken or failed bags, because this would not affect the reasonable assurance of compliance. The equipment using baghouse as control can 'blank or isolate' individual bags while maintaining the baghouse operation at the optimum level. The conditions D.1.19, D.2.9, D.3.11, D.4.17, and D.5.15 are revised as follows:

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired, ~~or replaced~~, **blanked or isolated**. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired, ~~or replaced~~, **blanked or isolated**. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C - Emergency Provisions).

Comment 7:

D.4.13 and D.5.11: "Scrubber" is ambiguous in the scrubber failure provisions. Change the language to: "In the event a scrubber system failure has been observed: Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C – Emergency Provisions)." Many scrubber systems are designed with redundant scrubber units so that one unit can be repaired or maintained while the others continue compliant operation.

Response 7:

The department agrees to make the suggested change in the language for conditions D.4.13 and D.5.11 as follows:

In the event that a scrubber **system** failure has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section C- Emergency Provisions).

Comment 8:

Ispat requests the ability to use the monitoring required by this permit to develop a baseline that can be used to determine an appropriate long-term monitoring frequency after six months of data collection. More specifically, for facilities that show consistent compliance, Ispat requests to have provisions written into the permit that would allow for alternative monitoring frequencies after a monitoring period of six months. This would enable Ispat to reduce unnecessary monitoring in situations where it is redundant, especially with respect to monitoring that is required every shift.

Response 8:

The department does not intend to allow for alternative monitoring frequencies in the permit without sufficient background information at its disposal to ascertain reasonable assurance of compliance. At this time, the Permittee has not provided the department any proposal regarding alternative monitoring requirements in order to conduct the evaluation of the monitoring methods. Therefore, the department is unable to make the suggested change in the permit language.

Comment 9:

D.1.1 – The CO BACT emission factors for the blast furnace are unproven. Please see the BACT analysis submitted in the permit application and covered in the TSD. Best Available Control Technology for the blast furnace is represented by the combustion of the by-product blast furnace gas. However, the exact emission factors representing BACT have not been established. Ispat has used the best available data; however, testing may reveal CO emissions different from what was assumed in the application. Please add the following permit language, as used in the Iron Dynamics permit No. 033-15955-00076: "If the stack tests required under condition D.1.12 show that the CO emission limitations are not achievable in practice, the Permittee can request the Department to re-evaluate D.1.1 to adjust this limitation to reflect more accurate CO control limitations observed in the test. The department may, at its discretion, use the authority under IC 13-15-7-2 to re-open and revise the limit to more closely reflect the actual stack test results. The Department may, at its discretion, provide an opportunity for public notice and comment prior to finalizing any permit decision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to

this permit modification.”

Response 9:

The department concurs with the commentator that there is limited information available at this time about the combustion performance at the blast furnace stoves. In the BACT determination, beyond the combustion of blast furnace gas in the stoves and boiler to minimize emissions, there is limited certainty about the emission factor for CO emissions. Therefore future testing of CO emissions could provide more detailed information about the CO emissions from the blast furnace stoves and boilers. Therefore, condition D.1.1 is changed as follows:

D.1.1 Carbon Monoxide (CO) - Best Available Control Technology [326 IAC 2-2-3]

- (a)** Pursuant to 326 IAC 2-2-3 (Control Technology Review: Requirements) the carbon monoxide emissions from the various stacks associated with the No.7 Blast Furnace shall not exceed the following limitations:

Stack ID, associated equipment	Type of fuel combusted at the equipment	CO emissions limitations (pound/MMSCF of fuel)
170, No.7 Blast Furnace Stoves	Blast furnace gas	13.7
	Natural gas	84
	Combination gas (a mix of natural gas and blast furnace gas)	$13.7 \times \text{Usage of BFG (MMSCF)} + 84 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)
134, No.5 Boiler House	Blast Furnace Gas	13.7
	Natural Gas	84
	Combination gas (a mix of natural gas and blast furnace gas)	$13.7 \times \text{Usage of BFG (MMSCF)} + 84 \times \text{Usage of NG (MMSCF)}$ Total usage of BFG and NG (MMSCF)

Stack ID, associated equipment	CO emissions limitations	Units
167, Cast house No.7 Blast Furnace east baghouse	0.56	pound/ton of hot metal produced
166, Cast house No.7 Blast Furnace west baghouse	0.56	pound/ton of hot metal produced

- (b)** If the stack tests required under condition D.1.12 show that the CO emission limitations in condition D.1.1 (a) are not achievable in practice, the Permittee can request the Department to re-evaluate the CO emissions limitations in D.1.1 (a). The department may, at its discretion, use the authority under IC 13-15-7-2 to re-open and revise the limit to more closely reflect the actual stack test results. The Department will provide an opportunity for public notice and comment prior to finalizing any permit decision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to this permit modification.

Comment 10:

D.1.3(f), Page 19 of TSD – References to the number of 7BF stoves should be struck in the PM₁₀ SIP and this permit. Regardless of three or four stove operation, Ispat will still comply with the PM₁₀ SIP limit. Furthermore, the new stove will be tied into the existing exhaust point that is shared with the other three stoves, meaning that there should be no need for revisions to the existing PM₁₀ SIP model. Because this new stove will have gone through the formal permitting process, this permit should recognize that and eliminate minor administrative discrepancies such as this.

Response 10:

The department agrees that the intent of the regulation is to restrict the PM₁₀ emissions. The descriptive information that whether the 7 Blast Furnace has three or four stoves is not relevant for SIP limitation purpose. In addition the PM₁₀ emissions from the modification have been modeled and shown to not cause impacts to the ambient air quality in the area. Therefore, the condition D.1.3 (f) is revised as follows:

D.1.3 Lake County PM10 emission requirements [326 IAC 6-1-10.1(d)]

Pursuant to 326 IAC 6-1-10.1(d)(19), PM₁₀ and total suspended particulate (TSP) emissions from the No. 7 Blast Furnace operations including the increased capacity shall not exceed the following:

- (a) PM₁₀ emissions from the No. 7 blast furnace stockhouse pellet baghouse (168) shall not exceed 0.0052 grains per dry standard cubic foot and 4.00 pounds per hour.
- (b) TSP emissions from the No. 7 blast furnace stockhouse coke baghouse (172) shall not exceed 0.01 grains per dry standard cubic foot and 2.00 pounds per hour.
- (c) TSP emissions from the No. 7 blast furnace coke screening baghouse (169) shall not exceed 0.007 grains per dry standard cubic foot and 4.200 pounds per hour.
- (d) PM₁₀ emissions from the No. 7 blast furnace (West (canopy) baghouse) (166) shall not exceed 0.003 grains per dry standard cubic foot and 11.22 pounds per hour.
- (e) TSP emissions from the No. 7 blast furnace (East (casthouse) baghouse) (167) shall not exceed 0.011 grains per dry standard cubic foot and 22.00 pounds per hour.
- (f) PM₁₀ emissions from the stack serving No. 7 blast furnace stove stack (~~3 units~~) (170) shall not exceed 0.0076 pounds/MMBtu and 6.32 pounds per hour.
- (g) PM₁₀ emissions from the No. 5 Boiler house 501-503 shall not exceed 0.013 lbs/ MMBtu and 18.05 pounds per hour

Each emission limit applies to one (1) stack serving one (1) facility unless otherwise noted. The emission limitations apply to one (1) stack serving the multiple units specified when the facility descriptions notes "stack serving", and to each stack of multiple stacks serving multiple facilities when the facility description notes "each stack serving".

A similar situation exists for the SO₂ emissions limitation under SIP. The SO₂ emissions from the modification have been modeled and shown to not cause impacts to the ambient air quality in the area. The department has revised the condition D.1.8 in a similar manner as follows:

D.1.8 Sulfur Dioxide [326 IAC 7-4-1.1(c)(10)(C)]

- (a) Pursuant to 326 IAC 7-4-1.1(c)(10)(C), the SO₂ emissions from the No. 7 blast furnace stove stack (~~3 units~~) (170) shall not exceed 0.146 pounds per MMBtu.

- (b) SO₂ emissions from No. 5 Boiler house 501-503, shall not exceed 0.104 lbs/MMBtu.

The IDEM, OAQ, acknowledges changes to the TSD in this addendum to the TSD. The TSD for the draft permit is not modified as it reflects the background information for the draft permit. All changes in the TSD are documented in the addendum to the TSD.

Comment 11:

D.1.12(b) – It should not be necessary to perform a second stack test on anything after initiation of 4-stove operation, other than the shared stack serving the new stove, once the post-reline testing requirements D.1.12(a) are met. Please eliminate the redundant testing requirements in D.1.12(b), except for the new stove testing requirement. In addition to the testing required for the new stove, the draft permit requires a second round of testing on the No. 5 Boilerhouse and the two blast furnace baghouses to show compliance with CO emission factors, in lb/ton of product or lb/mmcf of gas. Ispat does not anticipate changes in CO emission rates per ton of product or cubic foot of the by-product blast furnace gas used at the boilerhouse. Along with increased production and throughput we may see an increase in the total emissions of CO on an annual basis from these sources, but we have no reason to believe that the CO emissions rate per ton of product or cubic foot of gas would change.

Response 11:

The department has already acknowledged in response to a previous comment that there is limited information available regarding the CO emission factors and combustion efficiencies at various pieces of equipment associated with the operation of No.7 Blast Furnace. In addition the physical change of addition of the fourth stove to the No.7 Blast Furnace would result in the increase in the throughput of molten metal. At this time the department does not have sufficient information to ascertain whether this increase in the throughput would or would not affect the emissions from the associated equipment. Therefore, in order to assure compliance the performance testing after commencing of four stove operation is necessary and reasonable. No changes are made to any permit conditions.

Comment 12:

D.4.9 and D.5.7: The requirement for Pb testing is arbitrary and capricious. The net emissions change for lead is significantly below NSR significance levels. Please remove this requirement, which creates unnecessary expenses.

Response 12:

It is documented in the Appendix A of the TSD, that the basis for the Lead emission factor was a “1992 sludge analysis” for No.2 BOF and No.4 BOF. The department concurs that the net emissions increase from the modification for Lead emissions is below the significant level, but there is uncertainty about the Lead emissions estimate from the two emission units. Therefore, in order to preserve the netting analysis for the modification and have reasonable assurance of the quality of estimate for Lead emissions factors, the department has required testing for Lead emissions. No changes are made to any permit conditions.

Comment 13:

D.5.13: Please correct the baghouse pressure differential parametric ranges for the No. 4 Basic Oxygen Furnace Hot Metal Station baghouses:

- i) D.5.13(a): The correct north baghouse pressure drop range is 4.5-10 inches.
- ii) D.5.13(b): The correct south baghouse pressure drop range is 4-12 inches.

Response 13:

The pressure drop ranges across the north and south baghouse are revised as follows in condition D.5.13:

D.5.13 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the No. 4 BOF shop reladling and desulfurization (Hot Metal Station) baghouse north (26) at least once per shift when the Hot metal station is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of ~~6.0-14.0~~ **4.5-10.0** inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.
- (b) The Permittee shall record the pressure drop across the baghouse and the fan amperage of the baghouse used in conjunction with the No. 4 BOF reladling and desulfurization (Hot Metal Station) baghouse south (27) at least once per shift when the Hot metal station is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of ~~4.5-10~~ **4.0-12.0** inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.
- (c) The Permittee shall record the pressure drop across the baghouse used in conjunction with No. 4 BOF shop secondary ventilation system baghouse (37) at least once per shift when the Hot metal station is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 4.5-10.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C-Compliance Response Plan-Preparation, Implementation, Records and Reports, shall be considered a violation of this permit.

The instrument used for determining the pressure drop or flow rate shall comply with Section C - Pressure Gauge and other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

Comment 14:

Air Quality Analysis, Page 2 – Only emissions of CO exceeded significance levels, therefore, only CO must be modeled. This methodology is recognized in the Air Quality Analysis itself on the same page: “Significant emission rates are established to determine whether a source is required to conduct an air quality analysis. If a source exceeds the significant emission rate for a pollutant, air dispersion modeling is required for that specific pollutant.” The only pollutant that exceeds its significant emission rate level is CO. Please revise the Air Quality appendix to reflect that CO is the only pollutant for which an air quality analysis is required.

Air Quality Analysis, Page 3 – See previous comment. The second paragraph is unnecessary.

Air Quality Analysis, Page 4 – See previous comment. Table 2 should not include anything other than CO.

Response 14:

The language on Page 2 of Appendix B – Air Quality Analysis of TSD is incorrect. The modification only has net emissions increase for CO in amount greater than significant level under 326 IAC 2-2 as reflected in the Table 1. In this TSD addendum the department will like to acknowledge on record that the statement about NOx, SO2 and PM10 emissions being greater than significant level is incorrect.

The IDEM, OAQ, acknowledges changes to the TSD in this addendum to the TSD. The TSD for the draft permit is not modified as it reflects the background information for the draft permit. All changes in the TSD are documented in the addendum to the TSD.

The second paragraph on Page 3 of this document is descriptive information about the SO2 re-designation for Lake County and does not affect the modeling outcome for this modification. Similarly information on Page 4 in Table 2 does not affect outcome of the modeling analysis carried out for this modification and is relevant and correct. Therefore no changes are required for these two comments.

Written comments were received from Pamela Blakley, Chief, Air Permits Section of United States Environmental Protection Agency (U.S.EPA) on November 10, 2003. These comments and IDEM, OAQ responses, including changes to the permit (where language deleted is shown with ~~strikeout~~ and that added is shown in **bold**) are as follows:

Comment 1:

Netting Credits

This draft permit relies on netting credits to remain below the new source review (NSR) significant modification threshold for sulfur dioxide (SO2), particulate matter, oxides of nitrogen, lead, and volatile organic compounds. Of particular interest to us are the SO2 netting credits from the 4AC power station. U.S.EPA has initiated an enforcement action regarding construction of the Indiana Harbor coke plant located at Ispat Inland, the resolution of which could affect the number of SO2 credits available from the 4AC power station shutdown for this modification. Although we have no evidence at this time that would compel us to prevent IDEM's issuing this permit, we caution you that, if the enforcement action concludes that coke plant emissions were underestimated, one possible outcome is that insufficient netting credits remain for the current blast furnace project. In that event, Inland would have to undergo major NSR for SO2 for this project.

Response 1:

The department is aware that the U.S.EPA has issued Notice and Finding of Violation EPA-5-02-13-IN, on August 9th, 2002. This Notice and Finding of Violation was issued to Indiana Harbor Coke Company L.P., Cokenergy, Inc. and Ispat Inland, Inc. The U.S.EPA has alleged in this notice that construction of Heat Recovery Coal Cabonization plant at this Source was major modification for SO2 emissions. As advised by the commentator in the above comment, the outcome of the enforcement action to settle the Notice and Finding of Violation may impact the SO2 emissions credits available in the contemporaneous period for this modification at No.7 Blast Furnace.

The department is cognizant of this possible development and would promptly act to revise or modify this permit or re-permit this modification to make it consistent with the results of the enforcement action. In addition the department has discussed in detail the probable scenarios after the completion of enforcement proceedings with the Permittee and made it clear that one outcome of this action could be that the modification at No.7 Blast Furnace could end up major for SO2 emissions.

As acknowledged by the commentator at this time limited information is available both with the department

and with the commentator to ascertain a more formal course of action. Therefore, no changes are made to any permit conditions.

Comment 2:

Emission Rates

Since this permit does not rely on synthetic minor limits at the debottlenecked units to avoid NSR, it does not include any new emission rate limits for those units. However, appendix A of the permit lists the emission rates to be used in conjunction with actual throughput rates to demonstrate compliance with the permitted emission limits. In the event that updated emission rate information becomes available, we are concerned that, despite the availability of more accurate data, the permit will allow the source to continue to use the rate listed in appendix A to demonstrate compliance. We expect that the most accurate data will be used to demonstrate compliance with this permit and that, in the future, IDEM will act as expeditiously as possible to update the emissions rates in appendix A when necessary.

Response 2:

The department is cognizant of the fact that there may be a delay from the time when the new information regarding the revision to the emission factors becomes available and the date it becomes effective when it is added to the permit. The emission factors in Appendix A of the permit are to be used for purpose of demonstrating compliance and are not emission limits for the various emissions units. Therefore, the department expects that the Permittee from earliest possible time after the availability of new information about emission factors, would start to use them even if the Appendix A does not document this new emission factor. The rationale for this is since the new information about emission factor more closely reflects the emissions from the unit in question, it is appropriate to use the new emission factor from that time to demonstrate compliance with applicable limitations. The department will make every effort to promptly address the changes to the permit in wake of it being made aware about new information regarding emission factors and issue a revised permit at the earliest possible opportunity.

Therefore, no change is required to any permit conditions.

Appendix A: Emission Calculations
 Company Name: Ispat Inland, Inc.
 Address City IN Zip: 3210 Watling Street, East Chicago, IN 46312
 SSM: 089-16966
 Plt ID: 089-00316
 Reviewer: GS
 Date: 19-May-03

Addition of fourth stove at No.7 Blast Furnace

Annual emissions from the production line		Criteria Air Pollutants Emission Rates (tons/yr)					
Facility	PM	PM10	SO2	CO	NOx	VOC	Pb
Blast Furnace No. 7	300.66	460.63	893.52	2096.70	852.88	31.39	0.01
PCI	13.36	12.18	0.00	0.00	0.00	0.00	0.00
Lime Plant	56.98	60.29	0.25	375.71	43.53	2.30	0.01
No. 2 BOF*	326.93	295.78	262.40	30392.66	239.30	20.49	0.56
No. 4 BOF*	566.19	530.53	25.24	18408.93	227.48	20.21	0.91
No. 5 Boiler House	54.67	362.37	1180.03	1103.47	1850.89	0.24	0.01
Fugitive Emissions	164.76	34.42					
Worse Case Project Emissions	1156.62	1460.42	2336.20	33968.54	2986.60	54.44	0.94

*In case of No.2 and No.4 BOF, only the emissions from the worst case BOF operation was added to calculate the worst case annual emissions.

**Addition of fourth stove at No.7 Blast Furnace
Emissions Summary**

Emission Unit	Emission Location	Annual Emission Rates of Criteria Air Pollutants (tons/yr)						
		PM	PM10	SO2	CO	NOx	VOC	Pb
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	96.36	131.81	195.89	618.38	27.39	10.18	0.002643574
	Casthouse Baghouse No. 2 (west)	49.14	84.59	195.89	618.38	27.39	10.18	0.001391355
	Casthouse Fugitives	66.25	46.38	22.08	26.50	2.65	1.99	0.00238518
	Coke Transfer Station	0.06	0.03	0.00	0.00	0.00	0.00	0
	Stockhouse Coke Baghouse	0.29	0.26	0.00	0.00	0.00	0.00	0
	Stockhouse Pellet Baghouse	1.85	1.85	0.00	0.00	0.00	0.00	0
	Slag Pit Operations	65.17	60.57	76.07	40.55	6.59	0.66	0.000588791
	Stoves (NG)	2.90	11.61	0.92	128.30	158.85	8.40	0.000702621
	Stoves (BFG)	18.63	123.54	402.66	375.27	630.07	0.00	0.001827035
	Gas Cleaning System	0.00	0.00	0.00	289.31	0.00	0.00	0
	Blast Furnace No. 7 Total	300.66	460.63	893.52	2,096.70	852.88	31.39	0.01
PCI	Coal Transfer Baghouse A	0.44	0.44	0.00	0.00	0.00	0.00	0
	Coal Storage Baghouse C	0.61	0.61	0.00	0.00	0.00	0.00	0
	Coal Pulverizer Baghouse D	4.34	4.34	0.00	0.00	0.00	0.00	0
	Coal Pulverizer Baghouse E	4.34	4.34	0.00	0.00	0.00	0.00	0
	Coal Storage Baghouse F	0.64	0.64	0.00	0.00	0.00	0.00	0
	Coal Storage Baghouse G	0.64	0.64	0.00	0.00	0.00	0.00	0
	Coal Unloading	2.35	1.19	0.00	0.00	0.00	0.00	0
	PCI Total	13.36	12.18	0.00	0.00	0.00	0.00	0.00
	Silo Baghouses	24.22	24.22	0.00	0.00	0.00	0.00	0.00
	PCI Total	24.22	24.22	0.00	0.00	0.00	0.00	0.00
Lime Plant	No. 1 Kiln Baghouse	15.66	17.52	0.00	170.28	0.00	0.00	0.01
	No. 2 Kiln Baghouse	15.66	17.52	0.00	170.28	0.00	0.00	0.01
	Micro-Pulse Baghouse (2)	0.60	0.60	0.00	0.00	0.00	0.00	0.00
	Truck Loadout Baghouse	0.85	0.41	0.00	0.00	0.00	0.00	0.00
	No. 1 Kiln (NG)	0.00	0.01	0.13	17.58	21.76	1.15	7.701E-07
	No. 2 Kiln (NG)	0.00	0.01	0.13	17.58	21.76	1.15	7.701E-07
	Lime Plant Total	56.98	60.29	0.25	375.71	43.53	2.30	0.01
	10 Furnace Stack	62.94	62.31	77.30	14,965.35	88.34	1.10	0.07
	20 Furnace Stack	62.94	62.31	77.30	14,965.35	88.34	1.10	0.07
	10 Furnace Stack (NG)	0.05	0.20	0.02	2.18	2.60	0.14	1.195E-05
No. 2 BOF	20 Furnace Stack (NG)	0.05	0.20	0.02	2.18	2.60	0.14	1.195E-05
	Caster Roof Monitor	7.73	4.47	0.00	0.00	0.00	4.42	0.00
	Ladle Metallurgy Station	10.26	13.97	55.21	92.76	6.63	0.00	0.01
	Secondary, Ventilation System Scrubber	58.66	62.13	30.92	306.98	44.17	11.04	0.37
	Charging Aisle and Reloading Desulfurization Baghouse	56.54	47.48	20.76	0.00	5.30	2.21	0.00
	Truck and Ladle Hopper Baghouse	0.91	0.90	0.00	0.00	0.00	0.00	0.00
	Flux Storage and Batch Baghouse	0.60	0.60	0.00	0.00	0.00	0.00	0.00
	Roof Monitor	66.25	41.21	0.88	9.28	1.33	0.33	0.08
	Gas Cleaning System	0.00	0.00	0.00	48.59	0.00	0.00	0.00
	No. 2 BOF Total	326.93	295.78	262.40	30,392.66	239.30	20.49	0.56
	Scrubber	377.65	339.09	2.21	17,737.39	176.68	2.21	0.39
	Secondary Vent System Baghouse	97.67	104.00	2.21	306.98	44.17	11.04	0.37
	Reloading and Desulfurization Baghouse North	5.65	18.61	10.38	0.00	2.65	1.10	0.00
	Reloading and Desulfurization Baghouse South	5.65	18.61	10.38	0.00	2.65	1.10	0.00
	Roof Monitor	66.25	40.42	0.07	9.21	1.33	0.33	0.08
No. 4 BOF	Furnace Additives Bin Loading	0.13	0.13	0.00	0.00	0.00	0.00	0.00
	Torch Cut	7.73	4.47	0.00	0.00	0.00	4.42	0.00
	RHOB Condensers	0.88	0.65	0.00	47.26	0.00	0.00	0.07
	RHOB Material Handling	4.42	4.42	0.00	0.00	0.00	0.00	0.00
	Furnace Additive Hopper House	0.13	0.13	0.00	0.00	0.00	0.00	0.00
	Gas Cleaning System 4 BOF	0.00	0.00	0.00	103.80	0.00	0.00	0.00
	Gas Cleaning System 4BOF RHOB	0.00	0.00	0.00	204.29	0.00	0.00	0.00
	No. 4 BOF Total	566.19	530.53	25.24	18,408.93	227.48	20.21	0.91
	Boiler House (NG)	0.08	0.34	0.03	3.74	4.63	0.24	2.047E-06
	Boiler House (BFG)	54.59	362.03	1180.01	1099.73	1846.27	0.00	5.354E-03
	Boiler House (Mixed Gas)	0.00	0.00	0.00	0.00	0.00	0.00	0.000E+00
	No. 5 Boiler House Total	54.67	362.37	1,180.03	1,103.47	1,850.89	0.24	0.01
	No. 5 Boiler House Total	54.67	362.37	1,180.03	1,103.47	1,850.89	0.24	0.01
	No. 5 Boiler House Total	54.67	362.37	1,180.03	1,103.47	1,850.89	0.24	0.01
	No. 5 Boiler House Total	54.67	362.37	1,180.03	1,103.47	1,850.89	0.24	0.01
	No. 5 Boiler House Total	54.67	362.37	1,180.03	1,103.47	1,850.89	0.24	0.01
Fugitive from Roads	Roads	164.76	34.42					
	21-inch Bar Mill Facility	(4.71)	(4.69)	(0.37)	(51.82)	(116.09)	(13.33)	(0.0003)
	No. 2A Blooming Mill Hot Rolling	(0.31)	(0.29)		(0.20)	(0.25)	(0.01)	
	No. 2A Blooming Mill Scarfing						(21.10)	(0.0530)
	2A Blooming mill/21" Bar mill	(5.02)	(4.99)	(0.37)	(52.02)	(116.34)	(34.44)	(0.0533)

Production/throughput at various emissions units due to
 modification of the #7 Blast Furnace

Emission Unit	Annual Production/Throughput Changes	Units
No. 7 Blast Furnace	4,417,000 1,227,926 215,329 54,784 3,055 1,567,450 7,404,971 641,050 8,760	tons of hot metal produced tons of slag generated million standard cubic feet of blast furnace gas generated million standard cubic feet of blast furnace gas consumed at stoves million standard cubic feet of natural gas consumed at stoves tons of pulverized coal consumed tons of pellets consumed tons of coke usage increase hours of cast house operation
Nos. 2 and 4 BOF Shops	4,417,000 353,360 170,275	tons of steel slabs produced tons of slag generated tons of lime consumed
10 Furnace stack ignitor (NG)	52	millions standard cubic feet of natural gas consumed
20 Furnace stack ignitor (NG)	52	millions standard cubic feet of natural gas consumed
Pulverized Coal Injection	1,567,450	tons of PCI produced
Self Fluxing Pellets Handling	7,404,971	tons of pellets received and handled
Lime Plant	170,275 837	net tons of lime produced million standard cubic feet of gas consumed at kiln no.1 and 2
No. 5 Boiler House	160,545 89	million standard cubic feet of blast furnace gas consumed millions standard cubic feet of natural gas consumed

Molten iron production (tons/year) of:	4,417,000
Increase in hours of operation of cast house (hours/year) of:	8.760

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	8,760	hours	22.00	lb/hr	99.00%	96.36		SIP Limit
	Casthouse Baghouse No. 2 (west)	8,760	hours	11.22	lb/hr	99.00%	49.14		SIP Limit
	Casthouse Fugitives	4,417,000	hot metal	0.60	lb/ton	95.00%	66.25	15.13	AIRS
	Coke Transfer Station	641,050	coke	0.20	lb/ton	99.90%	0.06	0.01	AIRS
	Stockhouse Coke Baghouse	641,050	coke	0.09	lb/ton	99.00%	0.29	0.07	AIRS
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.10	lb/ton	99.50%	1.85	0.42	1996 data. 225 tons dust per 4,876,242 tons of pellets.
	Slag Pit Operations	1,227,926	slag	0.106	lb/ton		65.17	14.88	Lafarge Slag Operations Factor using 95% ganulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.56	lb/ton	99.90%	0.44	0.10	Inland emission factor
	Coal Storage Baghouse C	1,567,450	coal	0.78	lb/ton	99.90%	0.61	0.14	Inland emission factor
	Coal Pulverizer Baghouse D	8,760	hours	0.99	lb/hr	99.90%	4.34		SIP Limit
	Coal Pulverizer Baghouse E	8,760	hours	0.99	lb/hr	99.90%	4.34		SIP Limit
	Coal Storage Baghouse F	1,567,450	coal	0.818	lb/ton	99.90%	0.64	0.15	Inland emission factor
	Coal Storage Baghouse G	1,567,450	coal	0.818	lb/ton	99.90%	0.64	0.15	Inland emission factor
	Coal Unloading	1,567,450	coal	0.020	lb/ton	85.00%	2.35	0.54	AIRS
Lime Plant	Silo Baghouses	8,760.0	hours	5.53	lb/hr	99.00%	24.22		SIP Limit
	No. 1 Kiln Baghouse	8,760.0	hours	3.575	lb/hr	99.90%	15.66		SIP Limit
	No. 2 Kiln Baghouse	8,760.0	hours	3.575	lb/hr	99.90%	15.66		SIP Limit
	Micro-Pulse Baghouse (2)	170,275	lime	0.70	lb/ton	99.00%	0.60	0.14	Based on 0.01 gr/dscf, 3000 acfm and 150 deg f
	Truck Loadout Baghouse	170,275	lime	5.00	lb/ton	99.80%	0.85	0.19	AP-42
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	28.50	lb/ton	99.80%	62.94	14.37	AIRS
	20 Furnace Stack	2,208,500	molten steel	28.50	lb/ton	99.80%	62.94	14.37	AIRS
	Caster Roof Monitor	4,417,000	slabs	0.0035	lb/ton		7.73	1.76	Inland emission factor
	Ladle Metallurgy Station	4,417,000	molten steel	0.6636	lb/ton	99.30%	10.26	2.34	1996 data. 750 tons dust per 2,260,374 tons steel processed.
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	3.32	lb/ton	99.20%	58.66	13.39	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	4,417,000	hot metal	1.28	lb/ton	98.00%	56.54	12.91	AP-42
	Truck and Ladle Hopper Baghouse	170,275	flux	2.13	lb/ton	99.50%	0.91	0.21	Inland emission factor
	Flux Storage and Batch Baghouse	170,275	flux	1.42	lb/ton	99.50%	0.60	0.14	Inland emission factor
	Roof Monitor	4,417,000	molten steel	0.10	lb/ton	70.00%	66.25	15.13	3% of secondary vent EF
	Scrubber	4,417,000	molten steel	28.50	lb/ton	99.40%	377.65	86.22	AIRS
	Secondary Vent System Baghouse	8,760	hours	22.30	lb/hr	98.87%	97.67	22.30	SIP Limit
	Reladling and Desulfurization Baghouse North	2,208,500	hot metal	1.28	lb/ton	99.60%	5.65	1.29	AP-42
	Reladling and Desulfurization Baghouse South	2,208,500	hot metal	1.28	lb/ton	99.60%	5.65	1.29	AP-42
No. 4 BOF	Roof Monitor	4,417,000	molten steel	0.100	lb/ton	70.00%	66.25	15.13	3% of secondary vent EF of 3.32 lb/ton. Condensibles based on IEPA August 1991 Report.
	Furnace Additives Bin Loading	268,951	lime alloys	0.001	lb/ton		0.13	0.03	Inland emission factor
	Torch Cut	4,417,000	molten steel	0.0035	lb/ton		7.73	1.76	Inland emission factor
	RHOB Condensers	4,417,000	molten steel	0.20	lb/ton	99.80%	0.88	0.20	Inland emission factor
	RHOB Material Handling	4,417,000	molten steel	0.20	lb/ton	99.00%	4.42	1.01	Inland emission factor
	Furnace Additive Hopper House	268,951	lime alloys	0.001	lb/ton		0.13	0.03	Inland emission factor

PM10(Filterable+Condensable) emission rates due to process modification at #7 Blast Furnace:

Molten iron production (tons/year) of: 4,417,000
Increase in hours of operation of cast house (hours/year) of: 8,760

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor (Filterable)	Units	Control Efficiency	Emission Factor (condensable)	Units	Annual Change in Emissions		Source of Emission Factor
									(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	8,760	hours	22.000	lb/hr	98.10%	0.0321	lb/ton	131.81		SIP Limit+Condensable emissions
	Casthouse Baghouse No. 2 (west)	8,760	hours	11.220	lb/hr	99.00%	0.0321	lb/ton	84.59		SIP Limit+Condensable emissions
	Casthouse Fugitives	4,417,000	hot metal	0.310	lb/ton	95.00%	0.0055	lb/ton	46.38	10.59	AIRS+Condensable emissions
	Coke Transfer Station	641,050	coke	0.10	lb/ton	99.90%			0.03	0.01	AIRS
	Stockhouse Coke Baghouse	641,050	coke	0.04	lb/ton	98.00%			0.26	0.06	AIRS
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.05	lb/ton	99.00%			1.85	0.42	1996 data. 50% of PM emission factor. 225 tons dust per 4,876,242 tons of pellets to calculate PM.
	Slag Pit Operations	1,227,926	slag	0.0987	lb/ton				60.57	13.83	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.28	lb/ton	99.80%			0.44	0.10	50% of PM emission factor
	Coal Storage Baghouse C	1,567,450	coal	0.39	lb/ton	99.80%			0.61	0.14	50% of PM emission factor
	Coal Pulverizer Baghouse D	8,760	hours	0.99	lb/hr	99.80%			4.34		SIP Limit
	Coal Pulverizer Baghouse E	8,760	hours	0.99	lb/hr	99.80%			4.34		SIP Limit
	Coal Storage Baghouse F	1,567,450	coal	0.41	lb/ton	99.80%			0.64	0.15	50% of PM emission factor
	Coal Storage Baghouse G	1,567,450	coal	0.41	lb/ton	99.80%			0.64	0.15	50% of PM emission factor
	Coal Unloading	1,567,450	coal	0.01	lb/ton	85.00%			1.18	0.27	AIRS
		8,760.0	hours	5.53	lb/hr	98.60%			24.22		SIP Limit
Lime Plant	No. 1 Kiln Baghouse	8,760.0	hours	3.57	lb/hr	99.20%	0.0131	lb/ton	17.52		SIP Limit+Condensable emissions
	No. 2 Kiln Baghouse	8,760.0	hours	3.57	lb/hr	99.20%	0.0131	lb/ton	17.52		SIP Limit+Condensable emissions
	Micro-Pulse Baghouse (2)	170,275	lime	0.35	lb/ton	98.00%			0.60	0.14	Based on 0.01 gr/dscf, 3000 acfm and 150 deg F
	Truck Loadout Baghouse	170,275	lime	2.40	lb/ton	99.80%			0.41	0.09	AP-42
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	13.1226	lb/ton	99.57%			62.31	14.23	AIRS. Condensibles based on December 1999 stack test
	20 Furnace Stack	2,208,500	molten steel	13.1226	lb/ton	99.57%			62.31	14.23	AIRS. Condensibles based on December 1999 stack test
	Caster Roof Monitor	4,417,000	slabs	0.0015	lb/ton		0.000525	lb/ton	4.47	1.02	Inland emission factor+0.000525 lb/ton for condensable emissions
	Ladle Metallurgy Station	4,417,000	molten steel	0.31	lb/ton	98.60%	0.00205	lb/ton	13.97	3.19	46% of PM emission factor+0.00205 lb/ton for condensable emissions
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	1.7000	lb/ton	98.50%	0.00263	lb/ton	62.13	14.18	FIRE+0.00263 lb/ton for condensable emissions
	Charging Aisle and Reladling Desulfurization Baghouse	4,417,000	hot metal	0.310	lb/ton	97.00%	0.0122	lb/ton	47.48	10.84	AP-42+0.012 lb/ton for condensable emissions
	Truck and Ladle Hopper Baghouse	170,275	flux	1.06	lb/ton	99.00%			0.90	0.21	Inland emission factor
	Flux Storage and Batch Baghouse	170,275	flux	0.71	lb/ton	99.00%			0.60	0.14	Inland emission factor
	Roof Monitor	4,417,000	molten steel	0.0622	lb/ton	70.00%			41.21	9.41	3% of secondary vent EF
No. 4 BOF	Scrubber	4,417,000	molten steel	13.123	lb/ton	98.83%			339.09	77.42	AIRS. Condensibles based on December 1999 stack test
	Secondary Vent System Baghouse	8,760	hours	22.3000	lb/hr	97.80%	0.0027	lb/ton	104.00	23.74	SIP Limit+Condensable emissions
	Reladling and Desulfurization Baghouse North	2,208,500	hot metal	0.310	lb/ton	98.50%	0.0122	lb/ton	18.61	4.25	AP-42+0.012 lb/ton for condensable emissions
	Reladling and Desulfurization Baghouse South	2,208,500	hot metal	0.310	lb/ton	98.50%	0.0122	lb/ton	18.61	4.25	AP-42+0.012 lb/ton for condensable emissions
	Roof Monitor	4,417,000	molten steel	0.0610	lb/ton	70.00%			40.42	9.23	3% of secondary vent EF of 1.70 lb/ton. Condensibles based on IEPA August 1991 Report.
	Furnace Additives Bin Loading	268,951	lime alloys	0.001	lb/ton				0.13	0.03	Inland emission factor
	Torch Cut	4,417,000	molten steel	0.0015	lb/ton		0.000525	lb/ton	4.47	1.02	Inland emission factor
	RHOB Condensers	4,417,000	molten steel	0.10	lb/ton	99.80%	0.000096	lb/ton	0.65	0.15	Inland emission factor
	RHOB Material Handling	4,417,000	molten steel	0.10	lb/ton	98.00%			4.42	1.01	Inland emission factor
	Furnace Additive Hopper House	268,951	lime alloys	0.001	lb/ton				0.13	0.03	Inland emission factor

SO2 emission rates due to process modification at #7 Blast Furnace:

Molten iron production (tons/year) of: 4,417,000
Increase in hours or operation of cast house (hours/year) of: 8,760

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	2,208,500	hot metal	0.1774	lb/ton		195.89	44.72	January 1990 Stack Test
	Casthouse Baghouse No. 2 (west)	2,208,500	hot metal	0.1774	lb/ton		195.89	44.72	January 1990 Stack Test
	Casthouse Fugitives	4,417,000	hot metal	0.01	lb/ton		22.08	5.04	5% of casting baghouse emission factor
	Coke Transfer Station	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	1,227,926	slag	0.124	lb/ton		76.07	17.37	Lafarge Slag Operations Factor using 95% ganulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 2 Kiln Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Micro-Pulse Baghouse (2)	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	0.070	lb/ton		77.30	17.65	AP-42
	20 Furnace Stack	2,208,500	molten steel	0.070	lb/ton		77.30	17.65	AP-42
	Caster Roof Monitor	4,417,000	slabs	0.000	lb/ton		0.00	0.00	Not Applicable
	Ladle Metallurgy Station	4,417,000	molten steel	0.025	lb/ton		55.21	12.61	25% of 0.1 lb/ton EAF LMF emission factor
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	0.014	lb/ton		30.92	7.06	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	4,417,000	hot metal	0.0094	lb/ton		20.76	4.74	September 2002 stack test
	Truck and Ladle Hopper Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	4,417,000	molten steel	0.0004	lb/ton		0.88	0.20	3% of secondary vent EF
No. 4 BOF	Scrubber	4,417,000	molten steel	0.001	lb/ton		2.21	0.50	AIRS
	Secondary Vent System Baghouse	4,417,000	molten steel	0.001	lb/ton		2.21	0.50	Engineering Judgement
	Reladling and Desulfurization Baghouse North	2,208,500	hot metal	0.0094	lb/ton		10.38	2.37	September 2002 stack test
	Reladling and Desulfurization Baghouse South	2,208,500	hot metal	0.0094	lb/ton		10.38	2.37	September 2002 stack test
	Roof Monitor	4,417,000	molten steel	0.00003	lb/ton		0.07	0.02	3% of secondary vent EF
	Furnace Additives Bin Loading	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Condensers	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Material Handling	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable

CO emission rates due to process modification at #7 Blast Furnace:

Molten iron production (tons/year) of: 4,417,000
Increase in hours of operation of cast house (hours/year) of: 8,760

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	2,208,500	hot metal	0.5600	lb/ton		618.38	141.18	January 1990 Stack Test
	Casthouse Baghouse No. 2 (west)	2,208,500	hot metal	0.5600	lb/ton		618.38	141.18	January 1990 Stack Test
	Casthouse Fugitives	4,417,000	hot metal	0.012	lb/ton		26.50	6.05	5% of casting baghouse emission factor
	Coke Transfer Station	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	1,227,926	slag	0.066	lb/ton		40.55	9.26	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
	Gas Cleaning System	4,417,000	hot metal	0.131	lb/ton		289.31	66.05	Mass balance and solubility calculations
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Silo Baghouses	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	No. 1 Kiln Baghouse	170,275	lime	2.000	lb/ton		170.28	38.88	Inland emission factor
	No. 2 Kiln Baghouse	170,275	lime	2.000	lb/ton		170.28	38.88	Inland emission factor
	Micro-Pulse Baghouse (2)	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	139.00	lb/ton	90.25%	14,965.35	3,416.75	AIRS
	20 Furnace Stack	2,208,500	molten steel	139.00	lb/ton	90.25%	14,965.35	3,416.75	AIRS
	Caster Roof Monitor	4,417,000	slabs	0.000	lb/ton		0.00	0.00	Not Applicable
	Ladle Metallurgy Station	4,417,000	molten steel	0.042	lb/ton		92.76	21.18	December 1990 stack test
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	0.139	lb/ton		306.98	70.09	0.1% of furnace stack emission factor
	Charging Aisle and Reladling Desulfurization Baghouse	4,417,000	hot metal	0.00	lb/ton		0.00	0.00	Not Applicable
	Truck and Ladle Hopper Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	4,417,000	molten steel	0.0042	lb/ton		9.28	2.12	3% of secondary vent EF
	Gas Cleaning System	4,417,000	molten steel	0.0220	lb/ton		48.59	11.09	Mass balance and solubility calculations
No. 4 BOF	Scrubber	4,417,000	molten steel	139	lb/ton	94.22%	17,737.39	4,049.63	AIRS
	Secondary Vent System Baghouse	4,417,000	molten steel	0.139	lb/ton		306.98	70.09	0.1% of scrubber emission factor
	Reladling and Desulfurization Baghouse North	2,208,500	hot metal	0.00	lb/ton		0.00	0.00	Not Applicable
	Reladling and Desulfurization Baghouse South	2,208,500	hot metal	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	4,417,000	molten steel	0.0042	lb/ton		9.21	2.10	3% of secondary vent EF
	Furnace Additives Bin Loading	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Condensers	4,417,000	molten steel	1.07	lb/ton	98.00%	47.26	10.79	Inland emission factor
	RHOB Material Handling	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Gas Cleaning System 4 BOF	4,417,000	molten steel	0.0470	lb/ton		103.80	23.70	Mass balance and solubility calculations
	Gas Cleaning System 4BOF RHOB	4,417,000	molten steel	0.0925	lb/ton		204.29	46.64	Mass balance and solubility calculations

Molten iron production (tons/year) of:	4,417,000
Increase in hours of operation of cast house (hours/year) of:	8,760

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	2,208,500	hot metal	0.0248	lb/ton		27.39	6.25	January 1990 Stack Test
	Casthouse Baghouse No. 2 (west)	2,208,500	hot metal	0.0248	lb/ton		27.39	6.25	January 1990 Stack Test
	Casthouse Fugitives	4,417,000	hot metal	0.0012	lb/ton		2.65	0.61	5% of casting baghouse emission factor
	Coke Transfer Station	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	1,227,926	slag	0.0107	lb/ton		6.59	1.51	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 2 Kiln Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Micro-Pulse Baghouse (2)	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	0.08	lb/ton		88.34	20.17	AIRS
	20 Furnace Stack	2,208,500	molten steel	0.08	lb/ton		88.34	20.17	AIRS
	Caster Roof Monitor	4,417,000	slabs	0.000	lb/ton		0.00	0.00	Not Applicable
	Ladle Metallurgy Station	4,417,000	molten steel	0.003	lb/ton		6.63	1.51	1% of 0.302 PM10 EAF LMF emission factor
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	0.020	lb/ton		44.17	10.08	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	4,417,000	hot metal	0.0024	lb/ton		5.30	1.21	September 2002 stack test at No. 4 BOF
	Truck and Ladle Hopper Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	4,417,000	molten steel	0.0006	lb/ton		1.33	0.30	3% of secondary vent EF
No. 4 BOF	Scrubber	4,417,000	molten steel	0.080	lb/ton		176.68	40.34	AIRS
	Secondary Vent System Baghouse	4,417,000	molten steel	0.020	lb/ton		44.17	10.08	FIRE
	Reladling and Desulfurization Baghouse North	2,208,500	hot metal	0.0024	lb/ton		2.65	0.61	September 2002 stack test
	Reladling and Desulfurization Baghouse South	2,208,500	hot metal	0.0024	lb/ton		2.65	0.61	September 2002 stack test
	Roof Monitor	4,417,000	molten steel	0.0006	lb/ton		1.33	0.30	3% of secondary vent EF
	Furnace Additives Bin Loading	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Condensers	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Material Handling	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable

VOC emission rates due to process modification at #7 Blast Furnace:

Molten iron production (tons/year) of: 4,417,000
Increase in hours or operation of cast house (hours/year) of: 8,760

Emission Unit	Emission Location	Annual Production/Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	2,208,500	hot metal	0.00922	lb/ton		10.18	2.32	Average of 1998 Stack Tests
	Casthouse Baghouse No. 2 (west)	2,208,500	hot metal	0.00922	lb/ton		10.18	2.32	Average of 1998 Stack Tests
	Casthouse Fugitives	4,417,000	hot metal	0.0009	lb/ton		1.99	0.45	10% of casting baghouse emission factor
	Coke Transfer Station	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Coke Baghouse	641,050	coke	0.000	lb/ton		0.00	0.00	Not Applicable
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.000	lb/ton		0.00	0.00	Not Applicable
	Slag Pit Operations	1,227,926	slag	0.00107	lb/ton		0.66	0.15	Lafarge Slag Operations Factor using 95% ganulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse C	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse D	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Pulverizer Baghouse E	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse F	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Storage Baghouse G	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
	Coal Unloading	1,567,450	coal	0.000	lb/ton		0.00	0.00	Not Applicable
Lime Plant	Silo Baghouses	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 1 Kiln Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	No. 2 Kiln Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Micro-Pulse Baghouse (2)	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
	Truck Loadout Baghouse	170,275	lime	0.000	lb/ton		0.00	0.00	Not Applicable
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	0.001	lb/ton		1.10	0.25	AIRS
	20 Furnace Stack	2,208,500	molten steel	0.001	lb/ton		1.10	0.25	AIRS
	Caster Roof Monitor	4,417,000	slabs	0.002	lb/ton		4.42	1.01	AIRS
	Ladle Metallurgy Station	4,417,000	molten steel	0.000	lb/ton		0.00	0.00	Not Applicable
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	0.005	lb/ton		11.04	2.52	FIRE
	Charging Aisle and Reladling Desulfurization Baghouse	4,417,000	hot metal	0.001	lb/ton		2.21	0.50	AIRS
	Truck and Ladle Hopper Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Flux Storage and Batch Baghouse	170,275	flux	0.00	lb/ton		0.00	0.00	Not Applicable
	Roof Monitor	4,417,000	molten steel	0.00015	lb/ton		0.33	0.08	No. 4 BOF Roof Monitor
No. 4 BOF	Scrubber	4,417,000	molten steel	0.001	lb/ton		2.21	0.50	AIRS
	Secondary Vent System Baghouse	4,417,000	molten steel	0.005	lb/ton		11.04	2.52	FIRE
	Reladling and Desulfurization Baghouse North	2,208,500	hot metal	0.001	lb/ton		1.10	0.25	AIRS
	Reladling and Desulfurization Baghouse South	2,208,500	hot metal	0.001	lb/ton		1.10	0.25	AIRS
	Roof Monitor	4,417,000	molten steel	0.00015	lb/ton		0.33	0.08	3% of secondary vent EF
	Furnace Additives Bin Loading	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable
	Torch Cut	4,417,000	molten steel	0.002	lb/ton		4.42	1.01	Inland emission factor
	RHOB Condensers	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	RHOB Material Handling	4,417,000	molten steel	0.00	lb/ton		0.00	0.00	Not Applicable
	Furnace Additive Hopper House	268,951	lime alloys	0.00	lb/ton		0.00	0.00	Not Applicable

Emission Unit	Emission Location	Annual Production/ Throughput Change	Units (tons)	Emission Factor	Units	Control Efficiency	Annual Change in Emissions		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Casthouse Baghouse No. 1 (east)	2,208,500	hot metal	0.000126	lb/ton	98.10%	0.0026	0.0006	1992 dust analyses
	Casthouse Baghouse No. 2 (west)	2,208,500	hot metal	0.000126	lb/ton	99.00%	0.0014	0.0003	1992 dust analyses
	Casthouse Fugitives	4,417,000	hot metal	0.0000216	lb/ton	95.00%	0.0024	0.0005	HAPS Inventory
	Coke Transfer Station	641,050	coke	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Stockhouse Coke Baghouse	641,050	coke	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Stockhouse Pellet Baghouse	7,404,971	pellet	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Slag Pit Operations	1,227,926	slag	0.0000010	lb/ton		0.0006	0.0001	Lafarge Slag Operations Factor using 95% granulator/palletizer and 5% pits
PCI	Coal Transfer Baghouse A	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Storage Baghouse C	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Pulverizer Baghouse D	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Pulverizer Baghouse E	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Storage Baghouse F	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Storage Baghouse G	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Coal Unloading	1,567,450	coal	0.00	lb/ton		0.0000	0.0000	Not Applicable
Lime Plant	Silo Baghouses	170,275	lime	0.000425	lb/ton	98.60%	0.0005	0.0001	HAPS Inventory
	No. 1 Kiln Baghouse	170,275	lime	0.007571	lb/ton	99.20%	0.0052	0.0012	1992 dust analyses
	No. 2 Kiln Baghouse	170,275	lime	0.007571	lb/ton	99.20%	0.0052	0.0012	1992 dust analyses
	Micro-Pulse Baghouse (2)	170,275	lime	0.00	lb/ton	98.00%	0.0000	0.0000	Not Applicable
	Truck Loadout Baghouse	170,275	lime	0.00	lb/ton	99.80%	0.0000	0.0000	Not Applicable
No. 2 BOF	10 Furnace Stack	2,208,500	molten steel	0.015	lb/ton	99.60%	0.0663	0.0151	1992 sludge analyses
	20 Furnace Stack	2,208,500	molten steel	0.015	lb/ton	99.60%	0.0663	0.0151	1992 sludge analyses
	Caster Roof Monitor	4,417,000	slabs	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Ladle Metallurgy Station	4,417,000	molten steel	0.0006636	lb/ton	99.40%	0.0088	0.0020	Based on weight percent of lead in MSDS.
	Secondary, Ventilation System Scrubber	4,417,000	molten steel	0.00754	lb/ton	97.80%	0.3663	0.0836	HAPS Inventory
	Charging Aisle and Relading Desulfurization Baghouse	4,417,000	hot metal	0.0000627	lb/ton	97.00%	0.0042	0.0009	1992 dust analyses
	Truck and Ladle Hopper Baghouse	170,275	flux	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Flux Storage and Batch Baghouse	170,275	flux	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Roof Monitor	4,417,000	molten steel	0.0000772	lb/ton	70.00%	0.0511	0.0117	3% of secondary vent EF
No. 4 BOF	Scrubber	4,417,000	molten steel	0.015	lb/ton	98.83%	0.3876	0.0885	1992 sludge analyses
	Secondary Vent System Baghouse	4,417,000	molten steel	0.00754	lb/ton	97.80%	0.3663	0.0836	HAPS Inventory
	Relading and Desulfurization Baghouse North	2,208,500	hot metal	0.0000627	lb/ton	98.50%	0.0010	0.0002	1992 dust analyses
	Relading and Desulfurization Baghouse South	2,208,500	hot metal	0.0000627	lb/ton	98.50%	0.0010	0.0002	1992 dust analyses
	Roof Monitor	4,417,000	molten steel	0.000127	lb/ton	70.00%	0.0841	0.0192	HAPS Inventory
	Furnace Additives Bin Loading	268,951	lime alloys	0.00	lb/ton		0.0000	0.0000	Not Applicable
	Torch Cut	4,417,000	molten steel	0.00	lb/ton		0.0000	0.0000	Not Applicable
	RHOB Condensers	4,417,000	molten steel	0.0000322	lb/ton		0.0711	0.0162	Not Applicable
	RHOB Material Handling	4,417,000	molten steel	0.00003	lb/ton	98.00%	0.0013	0.0003	Inland emission factor
	Furnace Additive Hopper House	268,951	lime alloys	0.00	lb/ton		0.0000	0.0000	Not Applicable

PM emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	1.90	lb/mmcf		2.902	0.6626	AP-42
	Stoves (BFG)	54,783.8	mmcf	0.68	lb/mmcf		18.626	4.2526	January 1998 Stack Test
	Total Stoves						21.529	4.9152	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	1.90	lb/mmcf		0.049	0.0113	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	1.90	lb/mmcf		0.049	0.0113	AP-42
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	1.90	lb/mmcf		0.085	0.0193	AP-42
	Boiler House (BFG)	160,545.0	mmcf	0.68	lb/mmcf		54.585	12.4624	January 1998 Stack Test
	Boiler House (Mixed Gas)	0.0	mmcf	1.37	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						54.670	12.4817	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	1.90	lb/mmcf	99.90%	0.000	0.0001	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	1.90	lb/mmcf	99.90%	0.000	0.0001	AP-42

PM10 (Filterable +Condensable) emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	7.60	lb/mmcf		11.609	2.6503	AP-42
	Stoves (BFG)	54,783.8	mmcf	4.51	lb/mmcf		123.537	28.2049	January 1998 Stack Test
	Total Stoves						135.146	30.8552	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	7.60	lb/mmcf		0.197	0.0451	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	7.60	lb/mmcf		0.197	0.0451	AP-42
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	7.60	lb/mmcf		0.338	0.0772	AP-42
	Boiler House (BFG)	160,545.0	mmcf	4.51	lb/mmcf		362.029	82.6550	January 1998 Stack Test
	Boiler House (Mixed Gas)	0.0	mmcf	5.47	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						362.367	82.7322	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	7.60	lb/mmcf	99.20%	0.013	0.0029	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	7.60	lb/mmcf	99.20%	0.013	0.0029	AP-42

SO2 emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	0.60	lb/mmcf		0.916	0.2092	AP-42
	Stoves (BFG)	54,783.8	mmcf	14.70	lb/mmcf		402.661	91.9317	Heating value of 89 MMBTU/MMSCF
	Total Stoves						403.577	92.1409	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	0.60	lb/mmcf		0.016	0.0036	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	0.60	lb/mmcf		0.016	0.0036	AIRS
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	0.60	lb/mmcf		0.027	0.0061	AP-42
	Boiler House (BFG)	160,545.0	mmcf	14.70	lb/mmcf		1,180.005	269.4076	Heating value of 89 MMBTU/MMSCF
	Boiler House (Mixed Gas)	0.0	mmcf	0.43	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						1,180.032	269.4137	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	0.60	lb/mmcf		0.126	0.0287	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	0.60	lb/mmcf		0.126	0.0287	AP-42

CO emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	84.00	lb/mmcf		128.305	29.2933	AP-42
	Stoves (BFG)	54,783.8	mmcf	13.70	lb/mmcf		375.269	85.6778	AIRS
	Total Stoves						503.574	114.9712	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	84.00	lb/mmcf		2.183	0.4983	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	84.00	lb/mmcf		2.183	0.4983	AP-42
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	84.00	lb/mmcf		3.738	0.8533	AP-42
	Boiler House (BFG)	160,545.0	mmcf	13.70	lb/mmcf		1,099.733	251.0806	AIRS
	Boiler House (Mixed Gas)	0.0	mmcf	60.40	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						1,103.471	251.9339	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	84.00	lb/mmcf		17.577	4.0131	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	84.00	lb/mmcf		17.577	4.0131	AP-42

NOx emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	104.00	lb/mmcf		158.854	36.2679	AP-42
	Stoves (BFG)	54,783.8	mmcf	23.00	lb/mmcf		630.014	143.8387	AIRS
	Total Stoves						788.867	180.1066	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	100.00	lb/mmcf		2.598	0.5932	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	100.00	lb/mmcf		2.598	0.5932	AIRS
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	104.00	lb/mmcf		4.627	1.0565	AP-42
	Boiler House (BFG)	160,545.0	mmcf	23.00	lb/mmcf		1,846.267	421.5222	AIRS
	Boiler House (Mixed Gas)	0.0	mmcf	72.40	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						1,850.894	422.5786	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	104.00	lb/mmcf		21.763	4.9686	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	104.00	lb/mmcf		21.763	4.9686	AP-42

VOC emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	5.50	lb/mmcf		8.401	1.9180	AP-42
	Stoves (BFG)	54,783.8	mmcf	0.00	lb/mmcf		0.000	0.0000	Not Applicable
	Total Stoves						8.401	1.9180	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	5.50	lb/mmcf		0.143	0.0326	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	5.50	lb/mmcf		0.143	0.0326	AP-42
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	5.50	lb/mmcf		0.245	0.0559	AP-42
	Boiler House (BFG)	160,545.0	mmcf	0.00	lb/mmcf		0.000	0.0000	Not Applicable
	Boiler House (Mixed Gas)	0.0	mmcf	72.40	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						0.245	0.0559	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	5.50	lb/mmcf		1.151	0.2628	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	5.50	lb/mmcf		1.151	0.2628	AP-42

Pb emission rates due to combustion modification at #7 Blast Furnace:

Emission Unit	Emission Location	Throughput Change	Units	Emission Factor	Units	Control Efficiency	Annual Change in		Source of Emission Factor
							(tons/yr)	(lbs/hr)	
Blast Furnace No. 7	Stoves (NG)	3,054.9	mmcf	0.0004600	lb/mmcf		0.001	0.0002	AP-42
	Stoves (BFG)	54,783.8	mmcf	0.0000667	lb/mmcf		0.002	0.0004	HAPs Inventory
	Total Stoves						0.003	0.0006	
No. 2 BOF	10 Furnace Stack Ignitor (NG)	52.0	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AP-42
	20 Furnace Stack Ignitor (NG)	52.0	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AIRS
No. 5 Boiler House	Boiler House (NG)	89.0	mmcf	0.0004600	lb/mmcf		0.000	0.0000	AP-42
	Boiler House (BFG)	160,545.0	mmcf	0.0000667	lb/mmcf		0.005	0.0012	HAPs Inventory
	Boiler House (Mixed Gas)	0.0	mmcf	0.0003310	lb/mmcf		0.000	0.0000	71.9% of NG AP-42 EF
	Total Boiler House						0.005	0.0012	
Lime Plant	No. 1 Kiln (NG)	418.5	mmcf	0.000460	lb/mmcf	99.20%	0.000	0.0000	AP-42
	No. 2 Kiln (NG)	418.5	mmcf	0.000460	lb/mmcf	99.20%	0.000	0.0000	AP-42

Calculation of Particulate Matter and PM10 emissions from use of plant roads for the change

The applicant has presented detailed calculations for the emissions from the roads and other material handling equipment. These calculations are in Table 3-16 in the application. From these calculations following was summarized:

Emission Unit	PM emissions (tons/year)	PM emissions (lb/hour)	PM10 emissions (tons/year)	PM10 emissions (lb/hour)
Paved Roads	164.76	37.62	34.42	7.86

Appendix B - Air Quality Analysis

Source Background and Description

Source Name:	Ispat Inland, Inc.
Source Location:	3210 Watling Street, East Chicago, 46312
County:	Lake
SIC Code:	3312
Operation Permit No.:	089-6577-00316
Operation Permit Issuance Date:	Not yet issued
Significant Source Modification No.:	089-16966-00316
Modeling Reviewer:	Jeffrey Stoakes

Introduction

ISPAT Inland, Inc.(ISPAT) has applied for a Significant Source Modification(SSM) permit to construct and operate a fourth stove for a blast furnace for their iron and steel mill in East Chicago in Lake County, Indiana. The site is located at Universal Transverse Mercator (UTM) coordinates 463275.0 East and 4612024.0 North. Lake County is designated as non-attainment for the National Ambient Air Quality Standards for Sulfur Dioxide (SO₂), Ozone and Particulate Matter less than 10 microns (PM₁₀). Nitrogen Dioxide (NO₂) and Carbon Monoxide (CO)are designated as unclassified in Lake County. These standards for Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Carbon Monoxide (CO) and Particulate Matter less than 10 microns (PM₁₀) are set by the United States Environmental Protection Agency (U.S. EPA) to protect the public health and welfare.

Industrial Environmental Management Consultants, Inc. prepared the SSM/PSD permit application for ISPAT. The permit application was received by the Office of Air Quality (OAQ) on March 26, 2003, additional modeling was received on August 31, 2003. This document provides OAQ's Air Quality Modeling Section's review of the PSD permit application including an air quality analysis performed by the OAQ.

Air Quality Analysis Objectives

The OAQ review of the air quality impact analysis portion of the permit application will accomplish the following objectives:

- A. Establish which pollutants require an air quality analysis based on source emissions.
- B. Determine the ambient air concentrations of the source's emissions and provide analysis of actual stack height with respect to Good Engineering Practice (GEP).
- C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment.
- D. Perform a brief qualitative analysis of the source's impact on general growth, soils, vegetation, endangered species and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park which is 500 kilometers from the ISPAT site in Lake County, Indiana.

Summary

ISPAT has applied for a PSD construction permit to construct and operate a fourth blast air heating stove for the #7 blast furnace of their integrated iron and steel mill, in East Chicago in Lake County, Indiana. The PSD application was prepared by Industrial Environmental Management Consultants, Inc. of Chesterton, IN. Lake County is designated as non-attainment for the National Ambient Air Quality Standards for Sulfur Dioxide (SO₂), Ozone and Particulate Matter less than 10 microns (PM₁₀). Nitrogen Dioxide (NO₂)

and Carbon Monoxide (CO) are designated as unclassified in Lake County. Emission rates of four pollutants (Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Carbon Monoxide (CO) and Particulate Matter less than 10 microns (PM₁₀)) associated with the facility exceeded significant emission rates established in state and federal law, thus requiring air quality modeling. Modeling results taken from the Industrial Source Complex Short Term (ISCST3) model showed all pollutant impacts were predicted to be greater than the significant impact levels and significant monitoring de minimis levels for purposes of a National Ambient Air Quality Standards analysis. There was no impact review conducted for the nearest Class I area, which is Mammoth Cave National Park in Kentucky. No Class I analysis is required if a source is located more than 100 kilometers (61 miles) from the nearest Class I area. An additional impact analysis on the surrounding area was conducted and no significant impact on economic growth, soils, vegetation, federal and state endangered species or visibility from the ISPAT was expected.

Part A - Pollutants Analyzed for Air Quality Impact

Indiana Administrative Code (326 IAC 2-2) PSD requirements apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a new major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. CO, NO_x, SO₂, and PM₁₀ will be emitted from ISPAT and an air quality analysis is required for CO, NO_x, SO₂ and PM₁₀, all of which exceeded their significant emission rates as shown in Table 1. It should be noted that all emissions are based on the Best Available Control Technology (BACT) or Lowest Achievable Emission Rates (LAER) determination and other limitations resulting from the OAQ review of the application.

TABLE 1 - ISPAT Significant Emission Rates (tons/yr)				
<u>Pollutant</u>	<u>Maximum Allowable Emissions</u>	<u>Net Emissions Change</u>	<u>Significant Emission Rate</u>	<u>Attainment</u>
CO	5850.57	6358.59	100	Yes
NO _x	350.85	(4979.96)	40.0	No
SO ₂	365.86	(3997.75)	40.0	No
PM ₁₀	103.2	(722.66)	15.0	No

Significant emission rates are established to determine whether a source is required to conduct an air quality analysis. If a source exceeds the significant emission rate for a pollutant, air dispersion modeling is required for that specific pollutant. A modeling analysis for each pollutant is conducted to determine whether the source modeled concentrations would exceed significant impact levels. Modeled concentrations below significant impact levels are not required to conduct further air quality modeling. Modeled concentrations exceeding the significant impact level would be required to conduct more refined modeling which would include source inventories and background data. These procedures are defined in (Guidelines for Air Quality Maintenance Planning and Analysis, Volume 10, Procedures for Evaluating Air Quality Impacts of New Stationary Sources, October 1977, U.S. EPA Office of Air Quality Planning and Standards (OAQPS). The applicability of PSD requirements in attainment/unclassified areas and the applicability of Offset requirements in non-attainment areas are determined by comparison of the emissions increases for the project to "net significant emissions" thresholds. If the calculated increases in net emissions for each pollutant exceed the thresholds, the project is classified as a major modification project subject to PSD (for attainment/unclassified pollutants) or Offset requirements (for non-attainment pollutants). The net increases in emissions for the project are determined by adding the emission changes directly resulting from the project to all other contemporaneous and creditable emissions changes at the plant. For a

change to be contemporaneous, it must have been related to a project that occurred within five calendar years prior to and including the year during which construction for the subject project is expected to commence. For a change to be creditable it must be practicably enforceable (e.g., a condition in a federally enforceable permit or an emissions decrease properly creditable in accordance with the applicable federally enforceable regulation). ISPAT's calculations, found in Table 4-2A and 4-2B of their application show an increase in the net emissions of CO and decreases in PM₁₀, SO₂, and NO_x.

IDEM currently is in the process of redesignating Lake County from nonattainment to attainment for SO₂. To that end, IDEM has recently completed county-wide, Level 3, air dispersion modeling for SO₂ which includes SO₂ emissions rates from ISPAT. The IDEM modeling demonstrates attainment of the NAAQS for SO₂. The emission rates and locations provided by ISPAT included allowances that accommodate SO₂ emissions increases resulting from this project. As a result, ISPAT is relying on IDEM's recent Level 3 modeling to demonstrate that this project does not adversely impact ambient air.

Part B - Significant Impact Analysis

An air quality analysis, including air dispersion modeling, was performed to determine the maximum concentrations of the source emissions on receptors outside of the facility property lines. A worst-case approach for emission estimates has been taken due to the nature of the operational capability of the facility.

Model Description

The Office of Air Quality review used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated February 4, 2003 to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W A Guideline on Air Quality Models®. The Auer Land Use Classification scheme was referred to determine the land use in a 3 kilometer (1.9 miles) radius from the source. The area is considered primarily urban, therefore an urban classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects. Stacks associated with the steel mill are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations coming from the stacks. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. These aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

Meteorological Data

The meteorological data used in the ISCST3 model consisted of the latest five years of available surface data from the South Bend, IN National Weather Service station merged with the mixing heights from Peoria, IL Airport National Weather Service station. The 1991-1995 meteorological data was purchased through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3-ready format with a version of U.S. EPA's PCRAMMET.

Receptor Grid

The receptor locations used in the modeling were based on the receptor locations currently being used by the Office of Air Quality for modeling associated with the sulfur dioxide attainment demonstration for Lake County, Indiana. The receptor set consists of discrete receptors located along property boundaries of major facilities, including ISPAT, field receptors throughout Lake County and receptors at locations of

particular interest to IDEM. Actual elevations for receptor locations as well as modeled emission units were used.

Modeled Emissions Data

The modeling used the emission rates listed in Tables 6-5 and 6-6 of the application and was reviewed and revised by OAQ. The modeling results reflect these emissions and are considered the controlling results for this air quality analysis.

Modeled Results

Maximum modeled concentrations for each pollutant over its significant emission rate are listed below in Table 2 and are compared to each pollutant's significant impact increment for Class II areas, as specified by U.S. EPA in the Federal Register, Volume 43, No. 118, pg 26398 (Monday, June 19, 1978).

TABLE 2 - Summary of OAQ Significant Impact Analysis (ug/m3)					
<u>Pollutant</u>	<u>Year</u>	<u>Time-Averaging Period</u>	<u>ISPAT Maximum Modeled Impacts</u>	<u>Significant Impact Levels</u>	<u>Significant Monitoring Levels</u>
CO	1992	1-hour	1358	2000.0	a
CO	1992	8-hour	460	500.0	575.0
NO ₂	1992	Annual - 8760 hrs/yr	0.84	1.0	14.0
PM ₁₀	1994	24-hour	4.65	5.0	10.0
PM ₁₀	1995	Annual - 8760 hrs/yr	0.91	1.0	a

^a No limit exists for this time-averaged period

Part C - Additional Impact Analysis

PSD regulations require additional impact analysis be conducted to show that impacts associated with the facility would not adversely affect the surrounding area. ISPAT's PSD permit application provided an additional impact analysis performed by Industrial Environmental Management Consultants, Inc. This analysis included an impact on economic growth, soils, vegetation and visibility and is listed in Section 7 of their application.

Economic Growth and Impact of Construction Analysis

A variable construction workforce is expected and ISPAT will not require any additional workers. Secondary emissions are not expected to significantly impact the area as all roadways will be paved. Industrial and residential growth is predicted to have negligible impact in the area since it will be dispersed over a large area and new home construction is not expected to significantly increase. Any commercial growth, as a result of the proposed facility, will occur at a gradual rate and will be accounted for in the background concentration measurements from air quality monitors. There will be no adverse impact in the area due to industrial, residential or commercial growth.

Soils Analysis

Secondary NAAQS limits were established to protect general welfare, which includes soils, vegetation, animals and crops. Soil types in Lake County are of the Miami, Guilford and Sandy berm (Soil Survey of Lake County, U.S. Department of Agriculture). The general landscape consists of Tipton Till Plain or flat to gently rolling terrain (1816-1966 Natural Features of Indiana - Indiana Academy of Science). According to the insignificant modeled concentrations CO, NO₂, SO₂ and PM₁₀ and the HAPs analysis, the soils will not be adversely affected by the facility.

Vegetation Analysis

Due to the agricultural nature of the land, crops in the Lake County area consist mainly of corn, wheat, oats, soybeans and hay (1992 Agricultural Census for Lake County). The maximum modeled concentrations of ISPAT for CO, NO₂, SO₂ and PM₁₀ are well below the threshold limits necessary to have adverse impacts on surrounding vegetation such as autumn bent, nimblewill, barnyard grass, bishopscap and horsetail milkweed (Flora of Indiana - Charles Deam). Livestock in the county consist mainly of hogs, beef and milk cows, and chickens (1992 Agricultural Census for Lake County) and will not be adversely impacted from the modification. Trees in the area are mainly Beech, Maple, Oak and Hickory. These are hardy trees and due to the insignificant modeled concentrations, no significant adverse impacts are expected.

Federal and State Endangered Species Analysis

Federally endangered or threatened plants as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two threatened species of plants. The two threatened plants are found along the sand dunes in northern Indiana. The proposed facility is not expected to impact these species.

The state of Indiana's list of endangered, special concern and extirpated nongame species, as listed in the Department of Natural Resources, Division of Fish and Wildlife, contains species of birds, amphibians, fish, mammals, mollusks and reptiles which may be found in the area of ISPAT. However, the impacts are not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the agricultural activity in the area.

Additional Analysis Conclusions

The nearest Class I area to ISPAT is the Mammoth Cave National Park located approximately 500 km southwest in Kentucky. Operation of the proposed facility will not adversely affect the visibility at this Class I area. ISAPT is located well beyond 100 kilometers (61 miles) from Mammoth Cave National Park and will not have significant impact on the Class I area. The results of the additional impact analysis conclude the ISPAT's proposed facility will have no adverse impact on economic growth, soils, vegetation, endangered or threatened species or visibility on any Class I area.